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COMPREHENSIVE DATA HANDLING SYSTEM, AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS-II) PROGRAM DOCUMENTATION AND USER'S GUIDE

SECOND EDITION

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Waste Management
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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When dealing with atmospheric pollution, it is necessary to amass, catalog, sort, evaluate, and perform calculations upon large volumes of data. The Air Quality Data Handling System (AQDHS-II) provides air pollution control agencies with the capability to create and maintain their own air quality data base and to retrieve data and generate reports from that data base. This report contains documentation for the computer programs which comprise AQDHS-II. It is also written as a Users Guide with each program described, input requirements described, field descriptions, etc. In addition to the basic system, several preprocessor and postprocessor programs are provided which perform functions necessary to make this system compatible with existing systems such as SAROAD and the original AQDHS. The system has a powerful retrieval capability which allows the user to retrieve virtually any piece of data in his file. The system also allows the user to automatically generate his quarterly air quality progress report in SAROAD format.

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a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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SECOND EDITION

by

The Research Triangle Institute
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Research Triangle Park, North Carolina 27709

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PREFACE

This version of the Air Quality Data Handling Subsystem (AQDHS) of the Comprehensive Data Handling System (CDHS) is a major revision of and completely replaces the version of AQDHS described in APTD-1086. Conversion programs have been provided to assist the user in his transfer from the old AQDHS to the new AQDHS. Unless specifically mentioned, any occurrence of the term AQDHS refers to this version of AQDHS and not the previous version.

All of the programs in this subsystem have been written in ANS COBOL with the exception of one program. The Data Analysis program has been written in ANS FORTRAN for the Level G IBM FORTRAN-IV compiler.

This second edition, EPA-450/3-74-045-1, reflects changes to the system that have taken place since the original publication of this manual.

1.0 INTRODUCTION

This document is aimed at two different audiences. Its primary target is the person who will be using the Air Quality Data Handling Subsystem (AQDHS) of the Comprehensive Data Handling System (CDHS). By referring to the general program write-ups, input card formats, and cataloged procedures, the AQDHS user should be able to use the system without reference to detailed program documentation. However, sufficient detailed documentation is provided for the programmer responsible for the maintenance of AQDHS. This documentation takes the form of flow diagrams, organization, data formats and subroutines for each program in AQDHS, as well as several appendices. With these goals in mind, the document is organized in the following fashion:

- Section 2.0 - Contains an overview of AQDHS, a brief functional description of each program comprising the system, and a detailed discussion of the system master file and the transactions required to build the master file.

- Sections 3.0 through 7.0 - Contain detailed functional descriptions of each program in AQDHS, along with complete instructions on the use of all program functions. Following these are the descriptions of program logic, organization, data formats and subroutines for each program. The sections are organized as follows:

  Section 3.0 - Conversion programs
  Section 4.0 - Table Maintenance programs
  Section 5.0 - File Maintenance and Transaction Editor programs
  Section 6.0 - Data Retrieval programs
  Section 7.0 - Output programs

In general, each program in AQDHS is organized in the top-down manner in which higher level programming modules execute one or more lower level modules to perform specific functional tasks. These lower level modules may in turn execute still lower level modules to perform other specific tasks. Each module has one entry and one exit only. Thus, each program basically consists of a hierarchical structure of programming modules.

In addition, each program in AQDHS is programmed using structured programming techniques. These techniques include using only three basic types of programming construction blocks (IF/ELSE, DO and PROCESS) and preclude the use of explicit branches. These techniques, along with the top-down organization, make for programs which are extremely readable with straightforward logic and no branching to confuse the program flow. This also enhances the maintainability of the programs which comprise the system.

Because of the advanced manner in which AQDHS was developed, it became obvious that the standard method of program documentation, instruction by instruction and field by field, would not provide the level of information about the programs necessary for valid understanding. Therefore, the AQDHS programs have been documented by first describing their hierarchical top-down structure and then giving detailed descriptions of each main module within the structure. Thus, the serious AQDHS user can find his way directly into virtually any subroutine of a given program where he will then find the programming details in the structured code.

In addition, descriptions of all important data areas and all crucial high level modules within each program have been provided as well as hierarchical flow charts of each program.

2.0 AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS) OVERVIEW

When dealing with atmospheric pollution, it is necessary to amass, catalog, sort, evaluate, and perform calculations upon large volumes of data. The Air Quality Data Handling Subsystem of the Comprehensive Data Handling System provides a systematic method for collecting this data in a data base that will provide a central source for the information needed to help control air pollution. If the system is to be helpful, it must maintain the data base, keeping the information current, and provide a means for access to the information, presenting it in a usable form.

The Air Quality Data Handling Subsystem provides the ability to create and maintain, and to retrieve and print data from the data base. The creation and maintenance is accomplished with the File Maintenance program. This program allows the user to keep his data base information current and useful. Access to the data base information is provided by the Retrieval program set. These programs provide the means of extracting desired information from the data base. The output print programs are then used to convert the extracted information to a form readable by the user. These three functions form the basic system.

In addition to the basic system, several preprocessor and postprocessor programs are provided which perform functions necessary to make this system compatible with existing systems. All of the system programs are described in detail in the following sections.

2.1 ORGANIZATION

AQDHS is organized around two main programs, File Maintenance and Retrieval. There are seventeen other programs in the system that perform service functions. The interface for the programs that feed the File Maintenance program is the AQDHS transaction card. The AQDHS master file serves as the interface for the other programs. The AQDHS components are:

- Old AQDHS File to New AQDHS Input - Converts existing AQDHS files to new AQDHS transactions for building a new AQDHS master file.

- Old AQDHS (SAROAD) Input to New AQDHS Input - Converts old AQDHS transactions (SAROAD format) to new format AQDHS transactions.

- Parameter Code Table Maintenance - Maintains a table containing the valid combinations of parameter, method and unit codes along with their descriptions plus the minimum detectable value of the parameter.

- Site Code Table Maintenance - Maintains a table containing the valid combinations of state, area, site, agency and project codes along with a description of the site.

- Parameter Standards Table Maintenance - Maintains a table containing state and federal standards for parameters.

- Transaction Editor - Edits file maintenance transactions and converts them to an internal form usable by File Maintenance.

- File Maintenance - Creates and maintains the AQDHS master file.

- Retrieval Language Processor - Generates a COBOL program to retrieve records from the master file based on user specifications.

- Retrieval - Generated by the Retrieval Language Processor.

- Detail List - Provides a detailed formatted listing of the contents of the master file.

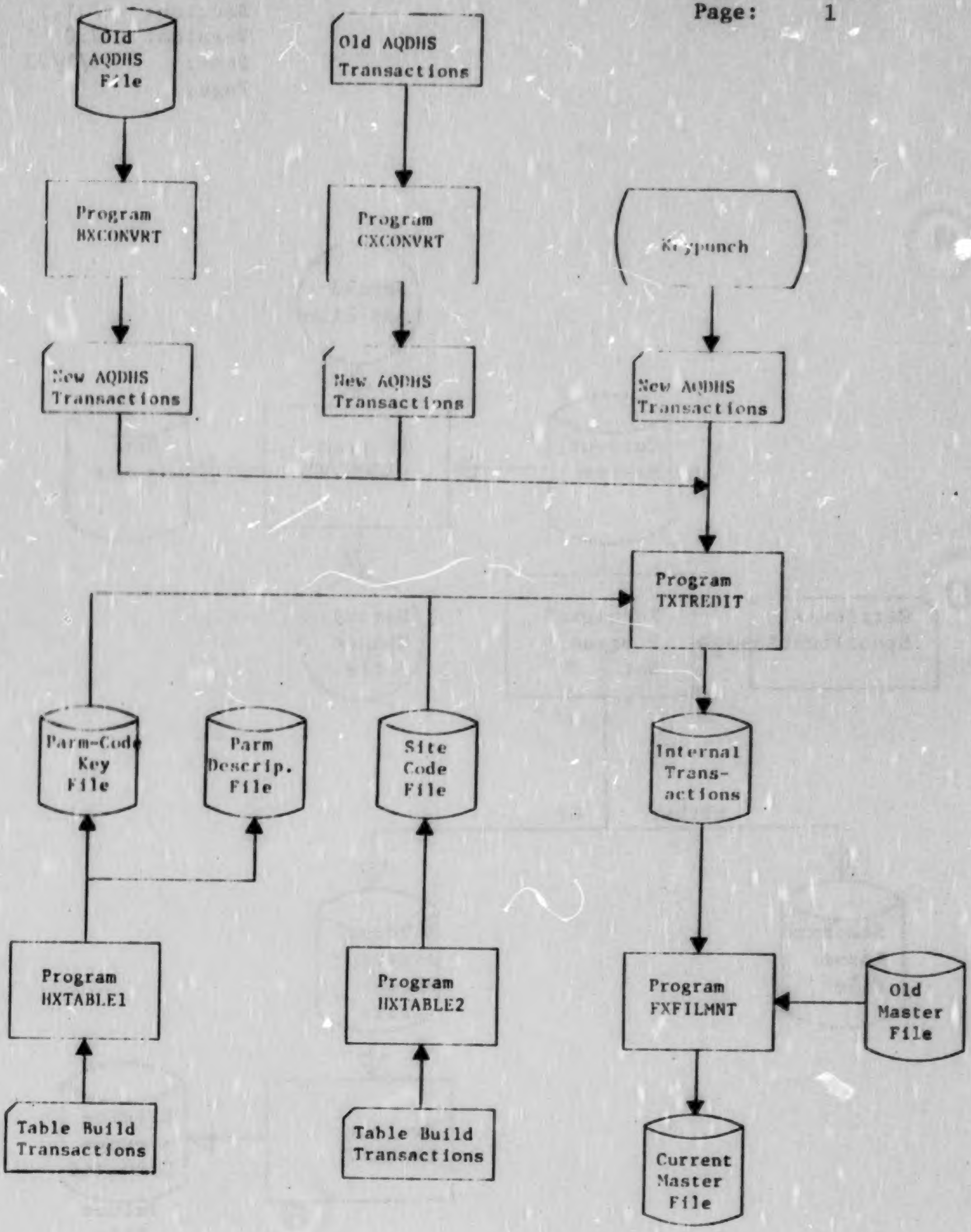
- Sliding Average - Formats each record in a sliding average answer file and computes a sliding average of the readings contained therein.

- Answer File Flagging - Appends an end-of-file (EOF) sentinel record to the answer or master file for use by Data Analysis.

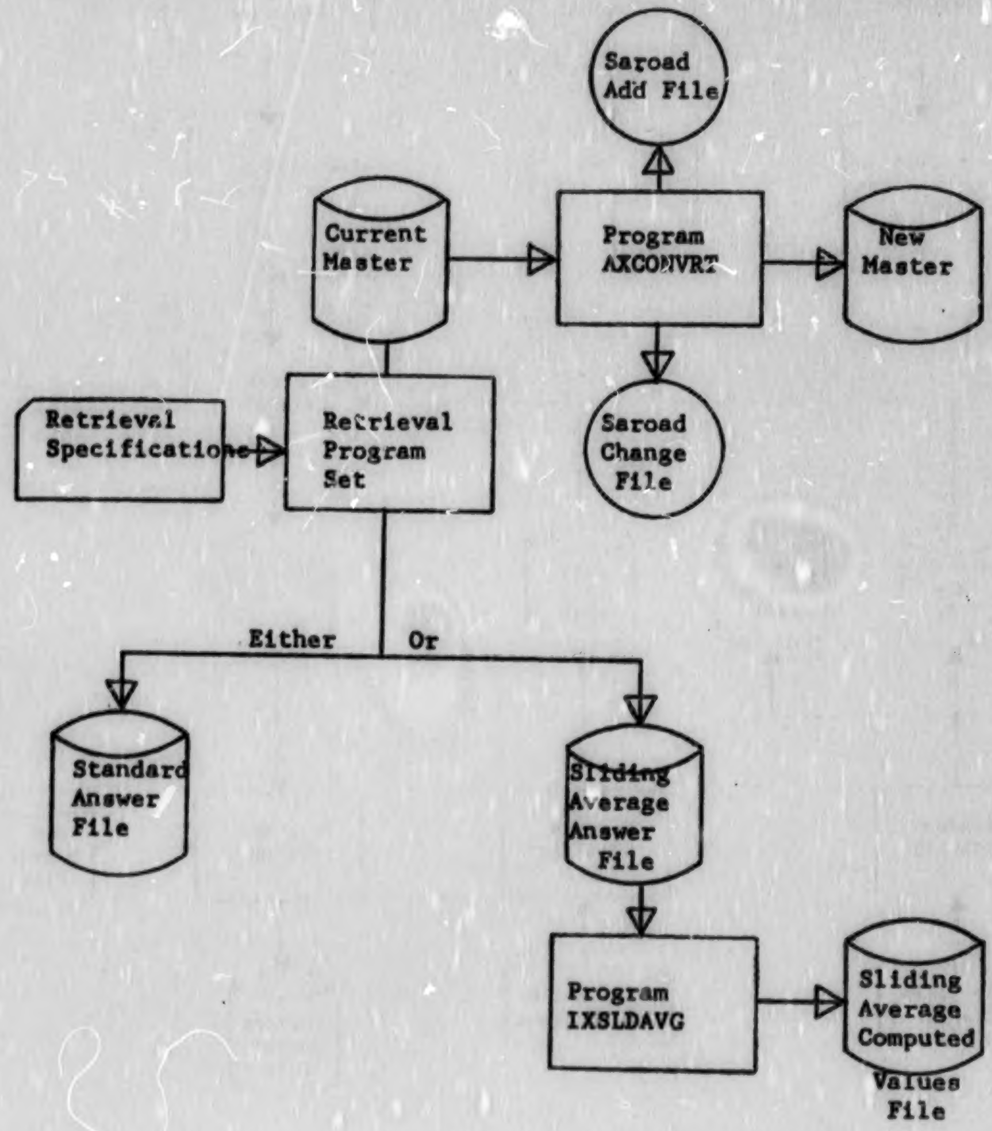
- Parm-Code-Key File Flagging - Appends an end-of-file (EOF) sentinel record to the key portion of the parameter, method, unit codes table file for use by Data Analysis.

- Data Analysis - Performs various statistical analyses on the readings in the master file.
- Statistical List - Formats the results of the analyses performed by Data Analysis.
- AQDHS-II File to SAROAD Input - Extracts new and changed readings in the AQDHS file and generates magnetic tapes for submission to SAROAD.
- Site Code List - Provides a detailed formatted listing of the site code file.
- Parameter Code List - Provides a detailed formatted listing of the parameter code file.
- Parameter Standards List - Provides a detailed formatted listing of the parameter standards file.
- AQDHS-II File Merge - Merges two distinct AQDHS-II master files into one master file.

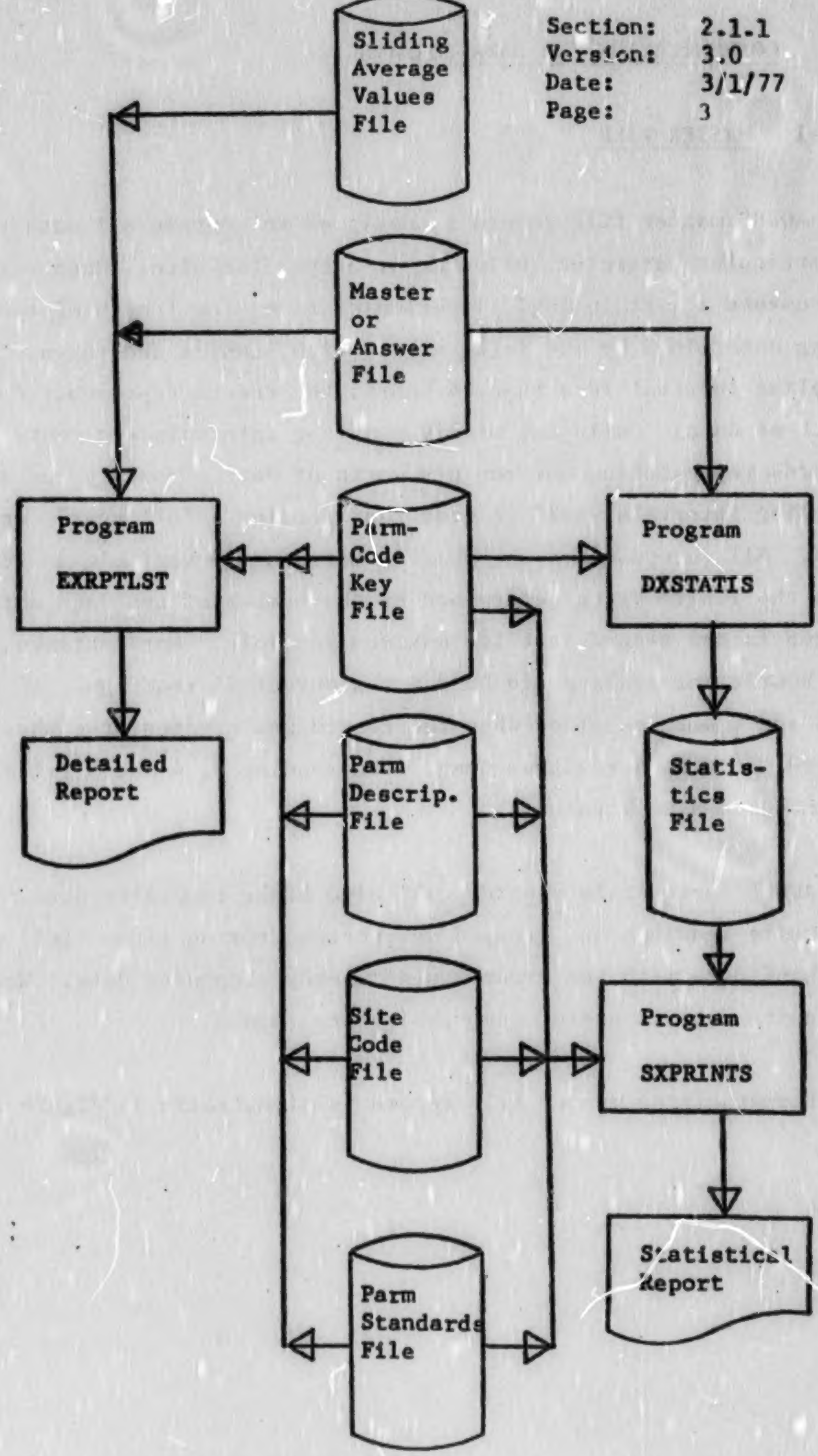
Figure 2.1.1 illustrates a possible data flow through AQDHS-II.



AQDHS System Data Flow
Figure 2.1.1



AQDHS SYSTEM DATA FLOW
Figure 2.1.1 (continued)



AQDHS System Data Flow
Figure 2.1.1 (continued)

2.2 COMMUNICATION AND DATA FORMATS

2.2-1 MASTER FILE

The AQDHS master file record is designed to contain all data related to a particular parameter collected at a specific site. Each record represents a certain logical period of time--the length of the period being determined by the interval at which samples are taken. For any sampling interval less than 24 hours, the record represents one day's worth of data. Daily and weekly sampling intervals are contained in records representing one month's worth of data. Monthly and quarterly sampling intervals yield records representing a full year's worth of data. All records have the same format and are variable in length, with the length being determined by the number of readings actually stored in the record, not the maximum possible. For instance, a record for hourly intervals could hold a maximum of 24 readings. If readings 1, 3 and 6 were supplied when the record was created, the physical record would be 6 readings long, with reading 2, 4 and 5 filled with 9s to indicate a null value.

The AQDHS master file records will also store composite data. The composite readings are grouped in records representing a full year's worth of data with the exception of weekly composite data. Weekly composite data is stored one reading per record.

The format of the master file record is illustrated in Figure 2.2-1.1.

AQDHS Master Record

Position	Format	Symbol	Description
1	9	Numeric	Action Code
2	9	Numeric	Form Code
3 - 4	XX	Alphameric	State Code
5 - 8	9999	Numeric	Area Code
9 - 11	999	Numeric	Site
12	A	Alphabetic	Agency
13 - 14	99	Numeric	Project
15	X	Alphameric	Time Code
16 - 17	99	Numeric	Year
18 - 19	99	Numeric	Month
20 - 21	99	Numeric	Day
22 - 23	99	Numeric	Start Hour
24 - 28	99999	Numeric	Parameter Code
29 - 30	99	Numeric	Method Code
31 - 32	99	Numeric	Unit Code
33	9	Numeric	Decimal Code
34 - 35	99	Numeric	Number of Readings
36	A	Alphabetic	Status Flag
37 - 40	9999	Numeric	Data Field

Note: Positions 36 - 40 may be repeated to include more than one reading in the Master Record. The number of repetitions is determined by the value in the Number of Readings field.

AQDHS Master Record Format

Figure 2.2-1.1

2.2-1.1 DEFINITION OF AQDHS MASTER FILE RECORD FIELDS

Action Code: This code indicates the last action that was performed on this record. The action codes are two (2) for Add and three (3) for Change.

Form Code: The three SAROAD transmittal-form codes currently accepted by AQDHS are: form #1, less than 24-hour sampling interval; form #2, 24-hour or greater sampling interval; and form #3, multiple station form. The corresponding AQDHS forms use the same form codes. Form #2 is also used for composite data.

State Code: State names are arranged in alphbetic sequence and assigned numbers from 01 to 52. To maintain consistency, both the District of Columbia and the territory of Puerto Rico are considered as states.

Area Code: Within each state the names of all incorporated areas with a population of more than 2500 and all counties are arranged alphabetically and assigned a four-digit number. County codes are used only for stations located outside incorporated areas.

Site: Specific sampling sites are designated by a three-digit number that permits a maximum of 999 sites in each city or county area within a state. Users are advised to contact the National Aerometric Data Bank to obtain their site codes. The valid SAROAD site codes from NADB will be used by the edit program when the transaction cards are checked.

Agency: The type of agency responsible for the sampling is designated by a single, alphabetic code. The current agency codes are shown in Appendix A, Table 1.

Project: The project codes classify projects according to the purpose of the project under which the data is generated. The principal categories are shown in Appendix A, Table 2.

Time Code: A single-digit alphameric code. The time codes used by AQDHS to indicate sampling intervals are shown in Appendix A, Table 3.

Year: The AQDHS date validation check accepts years from 1960 to the current year.

Month: The AQDHS date validation check accepts months from 01 to 12.

Day: The AQDHS date validation check accepts days from 01 to the maximum for each month. The maximum for February is 29.

Start Hour: A two-digit numeric code that indicates the hour of the first reading. The range of hours is from 00 to 23.

Parameter Code: A five-digit numeric code which permits a branching subcategorization of pollutants. A list of currently assigned codes may be found in EPA Publication No. APTD-0633; SAROAD Parameter Coding Manual.

Method Code: A two-digit numeric code designating the methods of collection and analysis. A list of valid codes may be obtained from EPA.

Unit Code: A two-digit numeric code used to designate the unit of measurement. A list of valid unit codes may be obtained from EPA. A partial list may be found in Appendix A, Table 4.

Decimal Code: A single-digit numeric code from 0 to 4 which indicates the number of digits in the data field that are to fall to the right of the decimal point.

Number of Readings: A two-digit numeric field that indicates the number of Data Fields and Status Flags that are in the record. This number is generated by the File Maintenance program and is used by the output programs.

Status Flag: This is a single-digit alphabetic code that indicates that the associated Data Field has been sent to SAROAD (value is 'S'), or is to be sent as an Add Record (value is 'A'), or Change Record (value is 'C'). The flag is set by the File Maintenance program and by the ADQHS File to SAROAD Input conversion program.

Data Field: The data fields contain the data as a four-digit number right-justified with leading-left zeros.

2.2-2 MASTER FILE MAINTENANCE TRANSACTIONS

The master file is constructed from the information contained on the AQDHS input transaction cards. These are three types of cards: Format 1, Format 2 and Format 3. The Format 1 transactions are used to enter readings taken at less than daily intervals. The Format 2 and Format 3 transactions are used to enter readings taken at daily or greater than daily intervals. Format 2 allows readings for multiple parameters to be entered while Format 3 allows readings from multiple stations to be entered. Format 2 transactions are also used to enter composite data.

Figure 2.2-2.1 illustrates the formats of the various transactions.

Format 1 AQDHS Transaction

Columns	Format	Symbol	Description
1	9	Numeric	Form Code
2-3	XX	Alphameric	State Code
4-7	9999	Numeric	Area Code
8-10	999	Numeric	Site Code
11	A	Alphabetic	Agency Code
12-13	99	Numeric	Project Code
14	9	Numeric	Time Code
15-16	99	Numeric	Year
17-18	99	Numeric	Month
19-20	99	Numeric	Day
21-22	99	Numeric	Start Hour
23-27	99999	Numeric	Parameter Code
28-29	99	Numeric	Method Code
30-31	99	Numeric	Units Code
32	9	Numeric	Decimal Position
33-36	9999	Numeric	Reading
37-40	9999	Numeric	Reading
41-44	9999	Numeric	Reading
45-48	9999	Numeric	Reading
49-52	9999	Numeric	Reading
53-56	9999	Numeric	Reading
57-60	9999	Numeric	Reading
61-64	9999	Numeric	Reading
65-78			Unused
79	A	Alphabetic	Status Flag
80	9	Numeric	Action Code

AQDHS File Maintenance Transactions

Figure 2.2-2.1

Format 2 AQDHS Transactions

Columns	Format	Symbol	Description
1	9	Numeric	Form Code
2-3	XX	Alphameric	State Code
4-7	9999	Numeric	Area Code
8-10	999	Numeric	Site Code
11	A	Alphabetic	Agency Code
12-13	99	Numeric	Project Code
14	X	Alphameric	Time Code
15-16	99	Numeric	Year
17-18	99	Numeric	Month
19-20	99	Numeric	Day
21-22	99	Numeric	Start Hour
23-27	99999	Numeric	Parameter Code
28-29	99	Numeric	Method Code
30-31	99	Numeric	Units Code
32	9	Numeric	Decimal Position
33-36	9999	Numeric	Reading
37-50			Repeat Columns 23-36
51-64			Repeat Columns 23-36
65-78			Repeat Columns 23-36
79	A	Alphabetic	Status Flag
80	9	Numeric	Action Code

AQDHS File Maintenance Transactions
Figure 2.2-2.1 (continued)

Format 2 AQDHS Composite Transaction

Columns	Format	Symbol	Description
17-18	99	Numeric	Period
19-20	99	Numeric	Number of Samples
21	9	Numeric	Composite Type
22	X	Alphameric	Time Code*

All other fields have the same format and meaning as those in the standard Format 2 transaction.

---

* Use SAROAD time code (APTD-0663 - Code Table 3) instead of AQDHS time code.

AQDHS File Maintenance Transactions
Figure 2.2-2.1 (continued)

Format 3 AQDHS Transaction

Columns	Format	Symbol	Description
1	9	Numeric	Form Code
2-3	XX	Alphameric	State Code
4	A	Alphabetic	Agency Code
5-6	99	Numeric	Project Code
7	X	Alphameric	Time Code
8-12	99999	Numeric	Parameter Code
13-14	99	Numeric	Method Code
15-16	99	Numeric	Units Code
17	9	Numeric	Decimal Position
18-19	99	Numeric	Year
20-21	99	Numeric	Month
22-23	99	Numeric	Day
24-25	99	Numeric	Start Hour
26-29	9999	Numeric	Area Code
30-32	999	Numeric	Site Code
33-36	9999	Numeric	Reading
37-49			Repeat Columns 24-36
50-62			Repeat Columns 24-36
63-75			Repeat Columns 24-36
76-78			Unused
79	A	Alphabetic	Status Flag
80	9	Numeric	Action Code

AQDHS File Maintenance Transactions

Figure 2.2-2.1 (continued)

2.2-2.1 DEFINITION OF AQDHS FILE MAINTENANCE TRANSACTION FIELDS

Action Code: Indicates the action to be performed by this transaction. Valid codes are:

1 - Delete
2 - Add
3 - Change

Agency Code: Identifies the agency responsible for these readings. Valid codes are found in Appendix A, Table 1.

Area Code: Identifies the area in which the sampling site is located.

Composite Period: Identifies the period during which the composite sample was taken. Valid codes are:

01 - 04	Quarterly and Seasonal Composite
01 - 12	Monthly Composite
01 - 52	Weekly Composite
00	Annual Composite

Refer to APTD - 0663 for a full discussion of composite data.

Composite Number of Samples: Indicates the number of individual samples that were composited.

Composite Time Code: Indicates the interval at which the individual composited samples were taken. This time code should be taken from Code Table 3 in APTD-0663 rather than from Appendix A, Table 3 in this document.

Composite Type: Indicates the interval at which the samples are composited. Valid codes are:

1 - Quarterly Composite
2 - Seasonal Composite

3 - Monthly Composite
4 - Weekly Composite
5 - Annual Composite

Day: The day of the month on which the sample was taken.

Decimal Position: A single-digit number from 0 to 4 which indicates the number of digits in the reading that are to fall to the right of the decimal point.

Form Code: The identification number of the form being used; 1, 2 or 3.

Method Code: Identifies both the collection method and the analysis method of the parameter being measured.

Month: The month of the year during which the sample was taken.

Parameter Code: Identifies the parameter being measured. Refer to APTD-0633 for a full list of currently accepted parameter codes.

Project Code: Identifies the project in association with which the sample was taken. Valid codes are found in Appendix A, Table 2.

Reading: The value of the sample taken.

Site Code: Identifies the site at which the sample was taken.

Start Hour: On the Format 2 and Format 3 transactions, the hour at which the sample was taken. On the Format 1 transaction, the hour at which the first reading was taken.

State: Indicates the state (or other geographic division) in which the sampling site is located.

Status Flag: Indicates the status of the readings on the transaction. Valid codes are:

S	previously sent to SAROAD
blank	to be sent to SAROAD

Time Code: Indicates the interval at which the samples were taken. Valid codes are found in Appendix A, Table 3.

Units Code: Indicates the units in which the parameter was measured. A partial list may be found in Appendix A, Table 4.

Year: The year in which the sample was taken.

2.3 ROUTINES

Within each program in AQDHS, certain similarities of construction and format will immediately become apparent. The top level paragraph (the one with which execution begins) in each COBOL program is named ROOT-SEGMENT. This paragraph controls, on a gross level, the sequence of execution of all other paragraph in the program. ROOT-SEGMENT performs at least three other paragraphs in this order: PGM-INIT, MAIN-LOOP, WRAP-UP. Within ROOT-SEGMENT there may be other paragraphs performed or other READS, WRITES or switch settings to tailor ROOT-SEGMENT to the particular program, however, the three basic paragraphs remain.

- PGM-INIT
  This paragraph performs whatever program initialization functions are necessary. These generally consist of opening all files, clearing work areas and initializing switches.

- MAIN-LOOP
  This paragraph controls the main-line processing of the program. Usually, this consists of reading an input record and, based on that input, determining the action to be taken.

- WRAP-UP
  This paragraph performs whatever program termination functions are necessary. These usually consist of writing program execution statistics messages and closing all files.

Because the paragraphs ROOT-SEGMENT, PGM-INIT, MAIN-LOOP and WRAP-UP are found in each COBOL program in AQDHS and their functions are similar, the detailed program documenation usually begins with a description of MAIN-LOOP.

Figure 2.3.1 shows the general AQDHS program organization.

During the development of AQDHS, it became apparent that many programs had certain identical functions to perform. For example, each program needed a print routine to control the printing of any messages it may have. Whenever a function performed by more than one program could be identified and could be accomplished by identical code, a paragraph or group of paragraphs was developed to fulfill the functions. These functional modules could then be "plugged into" any program needing this function. The use of "global code" aided greatly in the reduction of coding time and effort during the development of AQDHS. Some of the global modules are identified below.

- PRINT-ROUTINE
  This routine controls the printing of any messages from the program to the user. It keeps track of the number of lines printed on the page and handles the printing of titles at page overflow.

- BUILD-TABLES
  This routine reads in the valid site code table file and the key portion of the parameter, method, unit codes table file and builds them as arrays in core storage.

- BUILD-PARM-DESCRIPTION
  This routine reads in the description portion of the parameter, method, unit codes table file and builds it as an array in core storage.

- BUILD-STANDARDS-TABLE
  This routine reads in the parameter standards table file and builds it as an array in core storage.

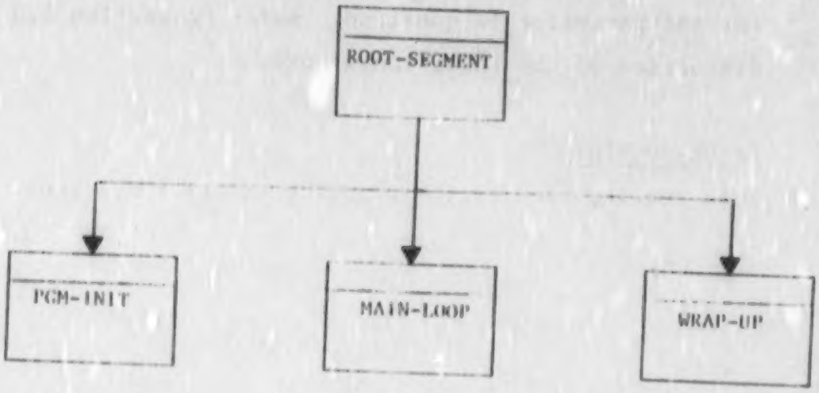
- SEARCH-TABLES
  This routine searches the valid site code table array and the parameter, method, unit codes table array and returns the subscripts of the correct entries.

- LOCATE-STANDARD

  This routine locates the appropriate state and federal standards for the parameter in question. Refer to section 4.3 for a discussion of the selection algorithm.

- ERROR-ROUTINE

  This routine handles the printing of error messages.



AQDHS - Organization
Figure 2.3.1

3.0 CONVERSION PROGRAMS

AQDHS provides three conversion programs to aid in entering data into and extracting data from the AQDHS master file. Two provide conversion of data for input to AQDHS. They are the Old AQDHS File to New AQDHS Input and the Old AQDHS (SAROAD) Input to New AQDHS Input conversion programs. The AQDHS File to SAROAD Input conversion program extracts data from the AQDHS master file for submission to SAROAD.

3.1 OLD AQDHS FILE TO NEW AQDHS INPUT

The Old AQDHS File to New AQDHS Input conversion program extracts the information contained in an old format AQDHS master file and converts it to the new AQDHS input format. These transactions may then be run through the Transaction Editor and File Maintenance programs to build a new format AQDHS master file.

All data in the old AQDHS master file should be sent to SAROAD before the conversion to the new AQDHS master file as this program sets the status flag to 'S', indicating that the data has been sent to SAROAD.

In order for this conversion program to work correctly, the format of the old AQDHS master file must correspond to the file description in APTD-1086. Any other file format will cause unpredictable results.

The name of the load module is BXCONVRT.

3.1.1 ORGANIZATION

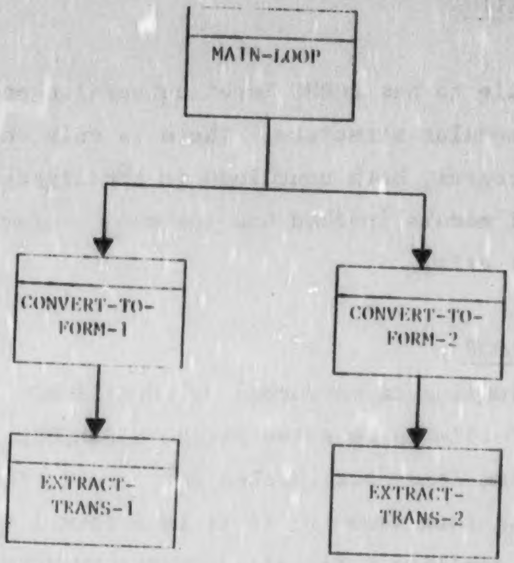
The Old AQDHS File to New AQDHS Input conversion program is organized in a top down, modular structure. There is only one entrance and one exit from the program, both contained in the highest level module. Each lower level module invoked has the same characteristics: one entrance and one exit.

- MAIN-LOOP
  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the old AQDHS file. First the time codes are checked for form-1, form-2, or an invalid form number. If it is a form-1 (less than daily sampling interval), CONVERT-TO-FORM-1 is performed. If it is a form-2 then CONVERT-TO-FORM-2 is performed, otherwise an error message is printed. Finally, READ-ROUTINE is performed which reads the next old AQDHS record.

- CONVERT-TO-FORM-1
  This routine builds a new AQDHS input record. First the data fields are moved. Then EXTRACT-TRANS-1 is performed which edits and moves the valid readings to the new record. If there are any readings in the new record then WRITE-ROUTINE is performed which writes a new AQDHS record.

- CONVERT-TO-FORM-2
  This routine builds a new AQDHS input record. First the data fields are moved. Then EXTRACT-TRANS-2 is performed which edits a specific data field and moves it to the new record; afterwards, WRITE-ROUTINE is performed.

Figure 3.1.1 shows the organization of BXCONVRT.



BXCONVRT - Organization
Figure 3.1.1

3.1.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

3.1.3 ROUTINES

The following are major subroutines of the Old AQDHS File to New AQDHS Input conversion program.

- **PRINT-SAROAD-RECORD**
  This routine reformats the old AQDHS file record and prints it out.

- **READ-ROUTINE**
  This routine reads an AQDHS record and performs PRINT-SAROAD-RECORD.

- **WRITE-ROUTINE**
  This routine writes a new AQDHS record.

3.2 OLD AQDHS (SAROAD) INPUT TO NEW AQDHS INPUT

This program accepts old AQDHS (SAROAD) format transactions and action cards and outputs new AQDHS format transactions. These transactions may then be used to create or update the AQDHS master file.

An action card indicates the action to be performed by all old AQDHS transactions following it until the next action card is encountered. Action cards are identified by a '$' in column 1 and an action code in column 2. There are three valid action codes: '1', '2', and '3'. '1' signals 'delete', '2' indicates 'add' and '3' means 'change'. A '$4' card is a status flag card and indicates that all old AQDHS transactions following it have been sent to SAROAD and the program begins generating a status flag of 'S' on the new AQDHS output transactions. This status flag code does not override the action code currently in effect (1, 2 or 3) nor can it be reset for the rest of the execution of the program.

The name of the load module is CXCONVRT.

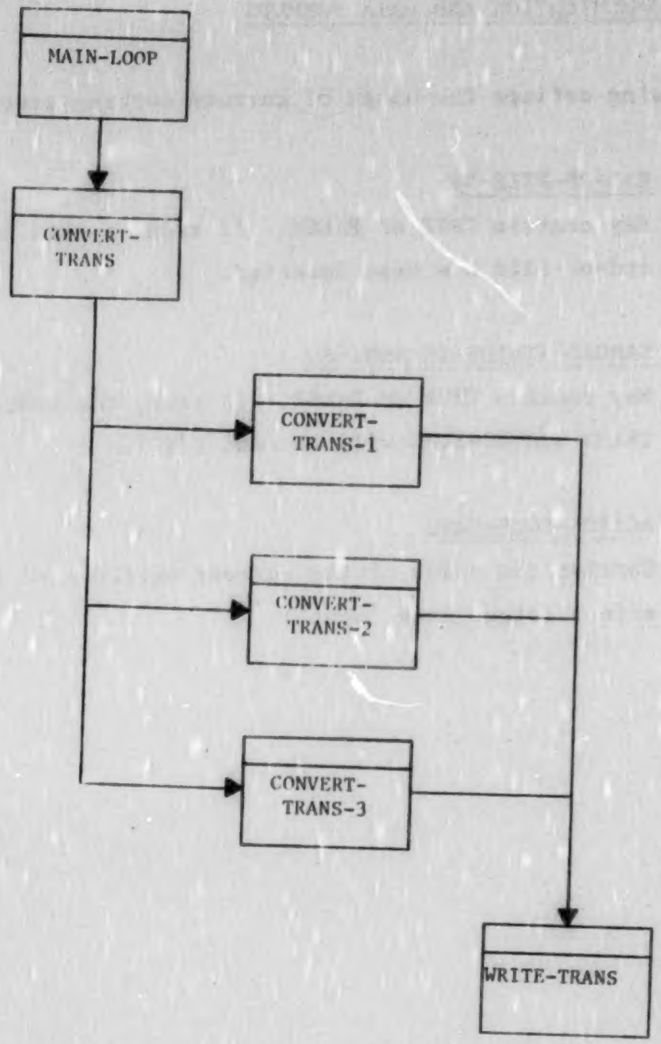
3.2.1 ORGANIZATION

The Old AQDHS (SAROAD) Input to New AQDHS Input conversion program is organized in a top down, modular structure. There is only one entrance and one exit from the program, both contained in the highest level module. Each lower level module invoked has the same characteristics: one entrance and one exit.

- MAIN-LOOP

  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the input file. First the input record is tested for an action card and, if it is, the action code is saved. If it is a valid transaction, then CONVERT-TRANS is performed which branches to CONVERT-TRANS-1, CONVERT-TRANS-2, or CONVERT-TRANS-3 depending on the transaction code. Finally, READ-ROUTINE is performed which reads the next input record.

Figure 3.2.1 shows the organization of CXCONVRT.



CXCONVRT - Organization
Figure 3.2.1

3.2.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- SAROAD-STATUS-IS-SENT-SW
  May contain TRUE or FALSE. If true, the status of TRANS-STATUS-FLAG will be sent ('S').

- ACTION-CODE-SAVE
  Carries the value of the current action card in effect (other than 'sent').

3.2.3 ROUTINES

The following are major subroutines of the Old AQDHS (SAROAD) Input to New AQDHS Input conversion program.

- CONVERT-TRANS
  This routine edits the fields on the input record for valid data. If invalid, an appropriate error message is printed out.

- READ-ROUTINE
  This routine reads an input record until end-of-file. Then TRUE is moved to END-OF-FILE-SW.

- SPLIT-TRANS-1
  This routine splits the input transaction between two work areas and re-calculates the start hour in the second work area. If there is data in the work data fields, then WRITE-TRANS is performed.

- WRITE-TRANS
  This routine writes the output transactions and clears the transaction work area.

3.3 AQDHS FILE TO SAROAD INPUT

The AQDHS File to SAROAD Input conversion program provides the user with the capability of periodically extracting new or changed data from the AQDHS master file and sending it to SAROAD for inclusion in the National Aerometric Data Bank. It is still the user's responsibility, however, to notify the EPA Regional Office and the NADB when previously submitted data is deleted from the AQDHS master file.

All data which has been previously sent to SAROAD is not re-sent. All data which has been previously sent to SAROAD but has been changed is sent as a change transaction. All new data is sent as an add transaction. As each reading is sent to SAROAD, its associated status flag is changed from 'A' or 'C' to 'S', indicating that it has been sent. The master file output from this program contains the same information as the input master file except that all status flags are set to 'S'. This master file thereby becomes to current AQDHS master file.

There are two ouput files containing transactions to be sent to the NADB. One file will begin with a '$2' action card followed by all add transactions, if any. The other file will contain a '$3' action card and all change transactions, if any. The '$2' and '$3' cards indicate the action to be performed by the transactions following them, add or change.

The name of the load module is AXCONVRT.

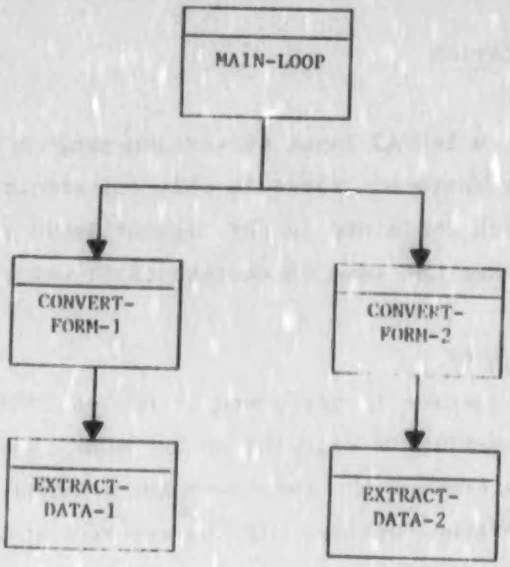
3.3.1 ORGANIZATION

The AQDHS File to SAROAD Input conversion program is organized in a top down, modular structure. There is only one entrance and one exit from the program, both contained in the highest level module. Each lower level module invoked has the same characteristics: one entrance and one exit.

- MAIN-LOOP
  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the AQDHS master file. It determines the form code and invokes the appropriate conversion routine. If the record has any add or change fields, a record is written to the SAROAD add file or the SAROAD change file. Afterwards, a new master file record is written and an old master file record is read.

- CONVERT-FORM-1 and CONVERT-FORM-2
  These routines build the SAROAD transaction records. First the ident key is moved from the master record. Then CONVERT-TIME-CODE is performed to convert the AQDHS time code to SAROAD time code. Next EXTRACT-DATA is performed to build the SAROAD add or change fields of the SAROAD transaction record. If the add or change fields are built, a record is then written.

Figure 3.3.1 shows the organization of AXCONVRT.



AXCONVRT - Organization
Figure 3.3.1

3.3.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- TIME-CODE-LOCATED-SW
  May contain TRUE or FALSE. If true, a match from a master file record is equal to a time code in the time-code-table.

- TYPE-IS-ADD-SW
  May contain TRUE or FALSE. If true, a record is written to the add file.

- WRITE-TRANS-SW
  May contain TRUE or FALSE. If true, a Form-1 record is written.

3.3.3 ROUTINES

The following are major subroutines of the AQDHS File to SAROAD Input conversion program.

- **EXTRACT-DATA-1**
  This routine extracts readings and converts all the add or change flags in the master record to 'S', indicating that it has been sent to SAROAD.

- **EXTRACT-DATA-2**
  This routine extracts readings and converts all the add or change flags in the master record to 'S'. If the status is not 'S', the INCREMENT-BY-TIME-CODE routine is performed. Then a SAROAD add or change record is written.

- **INCREMENT-BY-TIME-CODE**
  This routine converts the time code from the master record to hour, day, or month for the SAROAD transaction record.

- **READ-ROUTINE**
  This routine writes a new master file record and then reads the next old master file record.

- **WRITE-ROUTINE**
  This routine writes a SAROAD add or change record and performs INCREMENT-BY-TIME-CODE.

4.0 TABLE MAINTENANCE

Three programs are provided by AQDHS to maintain tables necessary for editing and report formatting. They are the Parameter Code Table Maintenance, the Site Code Table Maintenance and the Parameter Standards Table Maintenance programs. As with File Maintenance, they are used to create and update their respective tables.

4.1 PARAMETER CODE TABLE MAINTENANCE

The Parameter Code Table Maintenance program creates and maintains a table containing the valid combinations of parameter code, analysis and collection methods code, units code and the minimum detectable value of the parameter.

The table is stored externally in two segments. The key portion of the table, containing the parameter codes, methods codes, units codes and minimum detectable values, is stored in one segment while the associated description portion is stored in the other segment. The description portion contains prose descriptions of the values contained in the key portion of the table.

The Parameter Code Table Maintenance program operates in one of three modes: ADD, CHANGE and DELETE. The transactions entered into the program determine the mode of operation.

Two transactions must be entered for each entry in the table. The table file is searched in an attempt to match the key of the transactions with the key of an entry in the table. If no match can be found, the program operates in ADD mode and adds the entry described by the transactions to the table. If a matching key is found, the description portions of the transactions are examined. If they are blank, the program operates in DELETE mode and deletes the entry from the table. Otherwise, the program operates in CHANGE mode and replaces the description portion of the table entry with the description portions of the transactions.

Refer to Figure 4.1.4 for a description of the transactions.

The transactions must be sorted on the following fields before being read:

Key	bytes 2-15	ascending
Transaction-id	byte 1	ascending

The name of the load module is HXTABLE1.

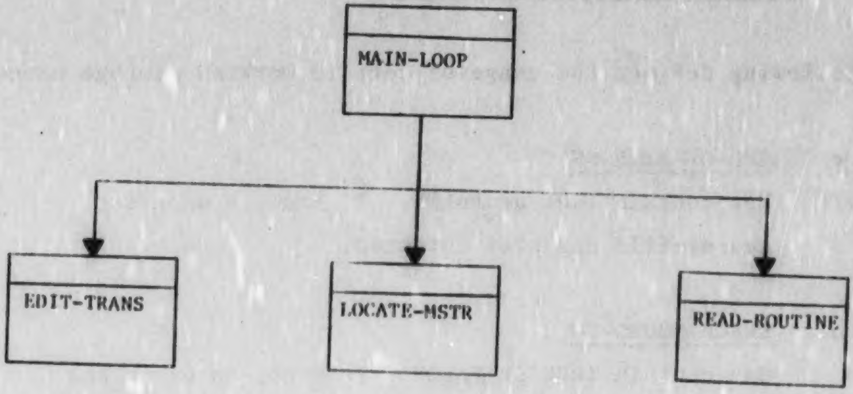
4.1.1 ORGANIZATION

The Parameter Code Table Maintenance program is organized in a top down, modular structure. There is only one entrance and one exit from the program, both contained in the highest level module. Each lower level module invoked has the same characteristics: one entrance and one exit.

- MAIN-LOOP

  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the transaction file. First, EDIT-TRANS is performed, which validates the fields in the transactions. If the cards are valid, LOCATE-MSTR is performed until the proper position is located. The required update is then performed. Finally, READ-ROUTINE is performed which reads two cards into the transaction work area.

Figure 4.1.1 shows the organization of HXTABLE1.



HXTABLE1 - Organization
Figure 4.1.1

4.1.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- ERROR-FOUND-SW
  May contain TRUE or FALSE. If true, an error has been detected during the card read routine processing.

- LAST-TRANS-WAS-DELETE-SW
  May contain TRUE or FALSE. If true, the last transaction deleted a parameter table entry.

- READ-SUPPRESSED-SW
  May contain TRUE or FALSE. If true, suppresses the reading of the transaction file.

- RECORD-LOCATED-SW
  May contain TRUE or FALSE. If true, the transactions have been matched against the parameter table.

- TRANS-REJECTED-SW
  May contain TRUE or FALSE. If true, there is an error in one or more of the input data fields being edited.

- KEY-SAVE
  Contains the current old parameter table key until end-of-file, then it is replaced with high values.

4.1.3 ROUTINES

The following are major subroutines of the Parameter Code Table Maintenance program.

- **COPY-MSTR**
  This routine performs WRITE-MSTR which writes out the new parameter table records unless the last transaction delete switch is on. Next, it moves the old parameter table records to work areas. Last, READ-MSTR is performed which reads the old parameter table files.

- **EDIT-TRANS**
  This routine edits the fields in the input card for valid data. If invalid, an appropriate error message is printed out.

- **LOCATE-MSTR**
  This routine cycles through the parameter table files, performing COPY-MSTR and WRITE-MSTR until an equal-to or greater-than condition occurs between the old parameter table and the input data.

- **READ-CARD-ROUTINE**
  This routine reads two cards and verifies that they have the same key and are in the proper sequence. If there is an error, an appropriate error message is printed out.

- **READ-ROUTINE**
  This routine performs READ-CARD-ROUTINE until END-OF-FILE-SW is true or ERROR-FOUND-SW is false.

Parameter Code Table Transactions

Card 1

Columns	Format	Symbol	Description
1	9	Numeric	Card Type
2 - 6	99999	Numeric	Parameter Code
7 - 8	99	Numeric	Method Code
9 - 10	99	Numeric	Units Code
11 - 14	9999	Numeric	Minimum Detectable
15	9	Numeric	Decimal Point
16 - 45	X - X	Alphameric	Parameter Description
46 - 70	X - X	Alphameric	Collection Method
71 - 80			Unused

Card 2

Columns	Format	Symbol	Description
1 - 15			Same as Card 1
16 - 40	X - X	Alphameric	Analysis Method
41 - 70	X - X	Alphameric	Units Description
71 - 80			Unused

Parameter Code Table Transactions
Figure 4.1.4

4.1.4 DESCRIPTION OF PARAMETER CODE TABLE TRANSACTION FIELDS

Card Type: Identifies the transaction as either card 1 or card 2 of a two card set. Valid values are 1 and 2.

Parameter Code: Identifies the parameter being described. Refer to APTD-0633 for a full list of currently accepted parameter codes.

Method Code: Identifies both the collection method and the analysis method of the parameter being described.

Units Code: Indicates the units in which the minimum detectable value is expressed. A partial list may be found in Appendix A, Table 4.

Minimum Detectable: Specifies the minimum value detectable using the specified collection and analysis methods.

Decimal Position: A single-digit number from 0 to 4 which indicates the number of digits in the minimum detectable value that are to fall to the right of the decimal point.

Parameter Description: A prose description of the parameter.

Collection Method: A prose description of the collection method.

Analysis Method: A prose description of the analysis method.

Units Description: A prose description of the units.

4.2 SITE CODE TABLE MAINTENANCE

The Site Code Table Maintenance program creates and updates a table containing valid site codes for this installation of AQDHS plus a prose description of the site.

The key of each transaction contains the full coded identification of the site: state code, area code, site code, agency code and project code. If a matching key is found in the table file and the site description in the transaction is blank, the table entry is deleted from the file. If the transaction description is not blank, it replaces the description in the table. If no matching key is found, a new table entry is created. This process is identical to that described in section 4.1.

Refer to Figure 4.2.4 for a description of transaction.

The transactions must be sorted on the following field before being used:

Key	bytes 1-12	ascending

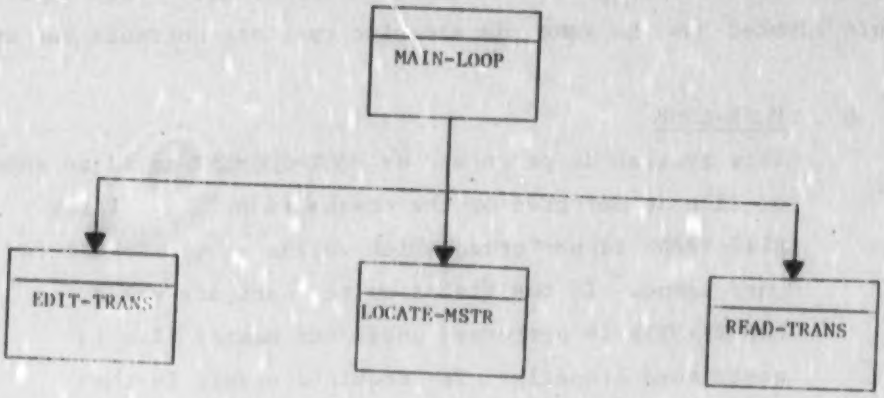
The name of the load module is HXTABLE2.

4.2.1 ORGANIZATION

The Site Code Table Maintenance program is organized in a top down, modular structure. There is only one entrance and one exit from the program, both contained in the highest level module. Each lower level module invoked has the same characteristics: one entrance and one exit.

- MAIN-LOOP
  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the transaction file. First EDIT-TRANS is performed which validates the fields on card input. If the fields on the card are valid, LOCATE-MSTR is performed until the master file is positioned properly. The required update is then performed. Finally, READ-TRANS is performed which reads the next card.

Figure 4.2.1 shows the organization of HXTABLE2.



HXTABLE2 - Organization
Figure 4.2.1

4.2.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW

  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- LAST-TRANS-WAS-DELETE-SW

  May contain TRUE or FALSE. If true, the last transaction deleted a site code table entry.

- RECORD-LOCATED-SW

  May contain TRUE or FALSE. If true, the transaction has been matched against the site code table.

- TRANS-REJECTED-SW

  May contain TRUE or FALSE. If true, there is an error on one or more of the input data fields being edited.

- KEY-SAVE

  Contains the current site code table key until end-of-file, then it is replaced with high values.

4.2.3 ROUTINES

The following are major subroutines of the Site Code Table Maintenance program.

- COPY-MSTR

  This routine performs WRITE-MSTR which writes out the site code table record unless the last transaction delete switch is on. Next, it moves the old site code table record to a work area.

- EDIT-TRANS

  This routine edits the fields on card input for valid data. If invalid, an appropriate error message is printed out.

- LOCATE-MSTR

  This routine cycles through the site code table file, performing COPY-MSTR and WRITE-MSTR until an equal-to or greater-than condition occurs between the old site code table and the input data.

- READ-MSTR

  This routine reads a site code table record and moves the old site code table key to key-save until end-of-file, then high values are moved to key-save.

- READ-TRANS

  This routine reads a transaction record and at end-of-file turns the END-OF-FILE-SW on.

Site Code Table Transaction

Columns	Format	Symbol	Description
1 - 2	XX	Alphameric	State Code
3 - 6	9999	Numeric	Area Code
7 - 9	999	Numeric	Site Code
10	A	Alphabetic	Agency Code
11 - 12	99	Numeric	Project Code
13 - 72	X - X	Alphameric	Site Description
73 - 80			Unused

Site Code Table Transaction

Figure 4.2.4

4.2.4 DESCRIPTION OF SITE CODE TABLE TRANSACTION FIELDS

State Code: Indicates the state (or other geographic division) in which the sampling site is located.

Area Code: Identifies the area within the state in which the sampling site is located.

Site Code: Identifies the sampling site.

Agency Code: Identifies the agency responsible for this sampling site. Valid codes are found in Appendix A, Table 1.

Project Code: Identifies the project using this sampling site. Valid codes are found in Appendix A, Table 2.

Site Description: A prose description of the sampling site.

4.3 PARAMETER STANDARDS TABLE MAINTENANCE

The Parameter Standards Table Maintenance program is used to create and maintain a table containing both state and federal parameter standards. Both of these standards may then appear on any reports relating to those parameters.

A maximum of one state standard and one federal standard will be selected for each report. Each standard is selected in the following fashion. The table is searched and the location of the first state or the first federal standard for the parameter in question is saved. An attempt is then made to match the unit codes in the master file with those in the table. If more than one match is made on the unit codes, the first one encountered is used. If no match on unit codes is made, the first standard for the parameter is used. Therefore, it is important to enter standards in order of decreasing priority. It may be desirable to create several standards tables with different priorities assigned to a given standard.

The key of each transaction contains the following information: parameter code, federal/state flag, and standard number. If a matching key is found in the table file and the description on the transaction is not blank, the proper description (primary or secondary) in the table entry is replaced. If the description is blank and the transaction indicates a primary standard, the entire table entry is deleted. Otherwise, only the secondary standard is deleted. If no matching key is found, a new table entry is created.

Refer to Figure 4.3.4 for a description of the transaction.

The transactions must be sorted before being input on the following fields:

parameter code	byte 1-5	ascending
federal/state flag	byte 6	ascending

standard number	bytes 7-8	ascending
primary/secondary flag	byte 9	ascending

The name of the load module is HXTABLE3.

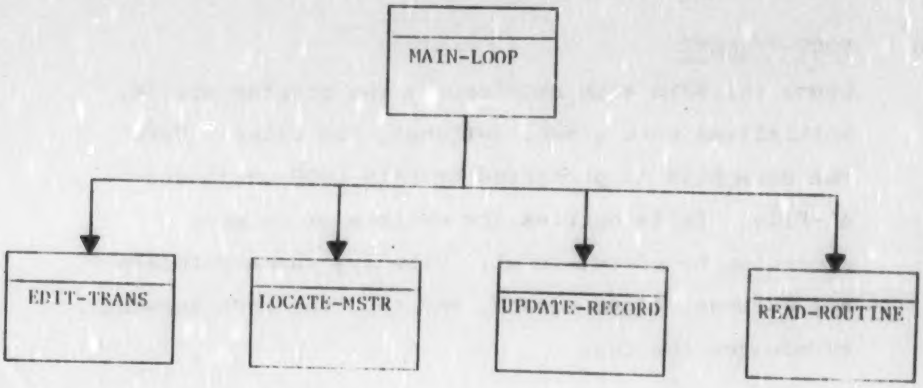
4.3.1 ORGANIZATION

The Parameter Standards Table Maintenance program is organized into two routines, the root segment and the main loop.

- **ROOT-SEGMENT**
  Opens the data sets required by the program module, initializes work areas, switches, and files. Next, the data file is processed by MAIN-LOOP until end-of-file. Table entries are written or deleted according to edited input. Finally, summary totals are written, files closed, and then the root segment terminates the run.

- **MAIN-LOOP**
  Editing is performed on card input by EDIT-TRANS. If no errors are found, LOCATE-MSTR is performed until record found switch is true and it is not a delete entry. Then the master record is updated or a new record added. Perform the READ-ROUTINE.

Figure 4.3.1 shows the organization of HXTABLE3.



HEXTABLE3 - Organization
Figure 4.3.1

4.3.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.
- LAST-TRANS-WAS-DELETED-SW
  May contain TRUE or FALSE. If true, the last transaction deleted a standards table record.
- RECORD-FOUND-SW
  May contain TRUE or FALSE. If true, either a new record is added or an old record is changed.
- TRANS-REJECTED-SW
  May contain TRUE or FALSE. If true, an error or errors have been found upon editing card input.
- KEY-SAVE
  Contains the old standards table key until end-of-file, then it is changed to high values.

4.3.3 ROUTINES

The following subroutines are part of the MAIN-LOOP.

- EDIT-TRANS
  This paragraph edits all fields for valid data. If any fields are invalid, they are flagged and ERROR-ROUTINE is performed which lists an appropriate error message.

- LOCATE-MSTR
  This paragraph positions the standards file so that an existing record may be updated or deleted or a new record may be created.

- READ-ROUTINE
  This paragraph reads a card and lists it.

- UPDATE-RECORD
  This paragraph checks to see if the input record is new or old, lists an added or replaced message, and updates the work area.

Parameter Standards Table Transaction

Columns	**Format**	**Symbol**	**Description**
1 - 5	99999	Numeric	Parameter Code
6	A	Alphabetic	Standard Source (F/S)
7 - 8	99	Numeric	Standard Number
9	9	Numeric	Standard Type
10 - 11	99	Numeric	Units Code
12 - 61	X - X	Alphameric	Standard
62 - 80			Unused

Parameter Standards Table Transaction
Figure 4.3.4

4.3.4 DESCRIPTION OF PARAMETER STANDARDS TABLE TRANSACTION FIELDS

Parameter Code: Identifies the parameter for which this standard applies. Refer to APTD-0633 for a full list of currently accepted parameter codes.

Standard Source: Identifies the source of this standard. Valid codes are F for federal and S for state.

Standard Number: A two-digit number indicating the frequency of use of this standard. 01 should represent the most frequently used standard for this parameter (i.e. the default to be used when no match can be made on units code).

Standard Type: Differentiates between primary and secondary standards. Valid codes are 1 for primary standard and 2 for secondary standard.

Units Code: Indicates the units in which the standard is expressed. A partial list may be found in Appendix A, Table 4.

Standard Description: A prose description of the standard.

5.0 FILE MAINTENANCE AND TRANSACTION EDITOR

Two programs are used to build and maintain the AQDHS-II master file. They are the Transaction Editor program and the File Maintenance program. The AQDHS-II File to SAROAD Input program also modifies the AQDHS-II master file. Refer to Section 3.3 for a discussion of these modifications.

5.1 TRANSACTION EDITOR

The Transaction Editor can only process AQDHS-II formatted transactions (ref. pages 266 through 269 of this manual). However, the user can encode his transactions in SAROAD format and convert them to AQDHS-II format for processing through the Transaction Editor, by using the SAROAD to AQDHS-II conversion program, CXCONVRT (ref. Section 3.2, page 33 of this manual).

The Transaction Editor performs two basic functions. First, it edits all AQDHS-II converted input transactions for correctness and informs the user of any errors. Second, it converts all input transactions passing the edit into an internal format usable by the File Maintenance program. The editing and conversion of each transaction is unaffected by any other transaction, either preceding or following. Therefore, transactions may be entered in any order.

The internal format transactions which are created by and are output from the Transaction Editor program must be sorted into master file sequence before they are input to the File Maintenance program. The order of the sort is as follows:

KEY-1	bytes 4-18	ascending
STATE	bytes 4-5	
AREA-CODE	bytes 6-9	
SITE	bytes 10-12	
AGENCY	bytes 13	
PROJECT	bytes 14-15	
TIME-CODE	bytes 16	
YEAR	bytes 17-18	

KEY-3	bytes 25-34	ascending
PARAMETER-CODE	bytes 25-29	
METHOD-CODE	bytes 30-31	
UNIT-CODE	bytes 32-33	
DECIMAL-CODE	bytes 34	
KEY-2	bytes 19-24	ascending
MONTH	bytes 19-20	
DAY-CODE	bytes 21-22	
START-HOUR	bytes 23-24	
ACTION-CODE, FORM-CODE & STATUS-FLAG	bytes 1-3	ascending

Please note that the AQDHS-II file maintenance program expects to see the internal transaction card in the sort sequence shown above. If this sort order is modified, the program will not function. The action (add, change, delete) to be performed by an input transaction is indicated by the action code in column 80 as follows:

Action Code	Action Performed
1	Deletes an entire master file record
2	Adds an entire master file record or individual data fields to an existing master file record
3	Replaces (or changes) the data fields of the existing master file record with the contents of the non-blank data fields of the transaction

The Transaction Edit Program views each transaction card (i.e., the punched card) both as a physical record and one or more logical records, i.e., common key information.

A Form 1 record contains one physical record and one logical record.

Form 2 and Form 3 records have one physical record, but may have up to four logical records, i.e., there is one logical record for each parameter entry in a Form 2 record and one logical record for each site entry in a Form 3 record.

The edit function is summarized by the following rule:

> *The logical record is rejected if any field is in error.*

This rule is necessary to protect the integrity of the file yet allow the user to pass as many valid logical records as possible during any execution of the Transaction Editor. Since an error in the key can only be changed by deleting and readding the record, a logical record with an error in the key is always rejected. *The reading, status flag, and action code are the only non-key data fields in any transaction.* If the action code is in error, the record is rejected. A reading is in error if it is non-numeric, contains embedded blanks (as opposed to leading blanks), or exceeds the maximum value for the parameter. (A reading of all blanks is permitted.) The program does not attempt error correction; it rejects the logical record. When an error is detected, the error message is printed denoting the error and the action taken. The message printed depends on the error, the input transaction form number and the field in error. Consider each input transaction form number:

Form 1 - If any field is in error the entire input is rejected because there is only one logical record on the card (both physical and logical record).

Form 2 - The following rules apply:

Card Rejected--The entire card is rejected if a key field common to all logical records is in error.

Logical Record Rejected--The logical record is rejected if the parameter code, method code, units code, decimal position, or reading for that logical record is in error. However, if the other logical records on the input card are valid, they will not be rejected.

Form 3 - The following rules apply:

Card Rejected--The card is rejected if a key field common to all logical records is in error.

Logical Record Rejected--The logical record is rejected if the start hour, area, site, or reading for that logical record is in error. Moreover, the logical record is rejected if the site code group is invalid; the site code group is formed by the combination of state, area, site, agency, and project code. If a corresponding entry does not exist in the site code table, the logical record is rejected and the column number of the first non-matching field in the group is flagged. If the error message specifies an invalid site code group, it is good practice to ensure that the corrected record will correspond to a valid site code table entry.

As of update 14, the number of Transaction Editor error messages has been expanded. A complete list of these error messages with explanation is included in Section 5.1.5.

The diagnostic message that follows serves as an example of the format of one of the error messages formats produced by this program.

```
***TRE038E ERROR:  COLUMN 12 - INVALID PROJECT CODE -
CARD REJECTED
```

The three consecutive asterisks at the left are used to highlight an error message. TRE identifies this as a Transaction Edit Error message. The digits 038 are the identifying number of the message. E is the level of severity in the error. Error severity levels are discussed below. The column number identifies the first column of the field in error. The text describes the error detected and the action taken by the program. CARD REJECTED means the entire card has been rejected.

The message that follows serves as an example of the format of an error message which may be produced for a Form 2 or Form 3 transaction in which a logical record is rejected.

```
***TRE047E ERROR:  COLUMN 65 - INVALID AREA CODE -
GROUP 04 REJECTED
```

GROUP 04 REJECTED means the logical record formed by combining information from columns 1 through 23 with the information in the repeating fields in columns 63 through 75 was rejected. Groups 01 through 03 were accepted. Three internal records formed by combining information from columns 1 through 23 with the appropriate repeating fields were generated and passed to the File Maintenance Program.

The error severity level symbols used in this program have the following meaning:

W Warning--Indicates a possible error was made in the transaction. However, it is not serious enough to hinder execution of the program.

E Error--Indicates a serious error was made. The program takes no corrective action. The logical record containing the error is rejected. Edit processing will be continued on the remaining logical records, if any. The logical record in error should be corrected and resubmitted. This corrected transaction can then be edited during a later execution of the transaction editor.

S Serious--Indicates a serious error was made. Program execution is terminated. All output of the program should be treated as unusable. Correct the cause of the error and resubmit the job.

Refer to Figure 2.2-2.1 for the formats of the transactions.

The name of the load module is TXTREDIT.

5.1.1 ORGANIZATION

The following are the main modules of the Transaction Editor program.

- MAIN-LOOP
  Performed by ROOT-SEGMENT, this routine edits input transactions, creating internal (system recognizable) transactions. Depending on the input transaction code, the routine performs a lower level segment to edit the different transaction formats.

- CONVERT-TRANS
  Performed by MAIN-LOOP, this routine performs lower level segments to do the actual editing and to write the "edited" form out to the internal transaction file.

- SCAN-FULL-KEY
  Performed by CONVERT-TRANS, this routine scans the input transaction in its entirety for user errors, e.g., invalid time code, non-numeric project code, invalid day, etc.

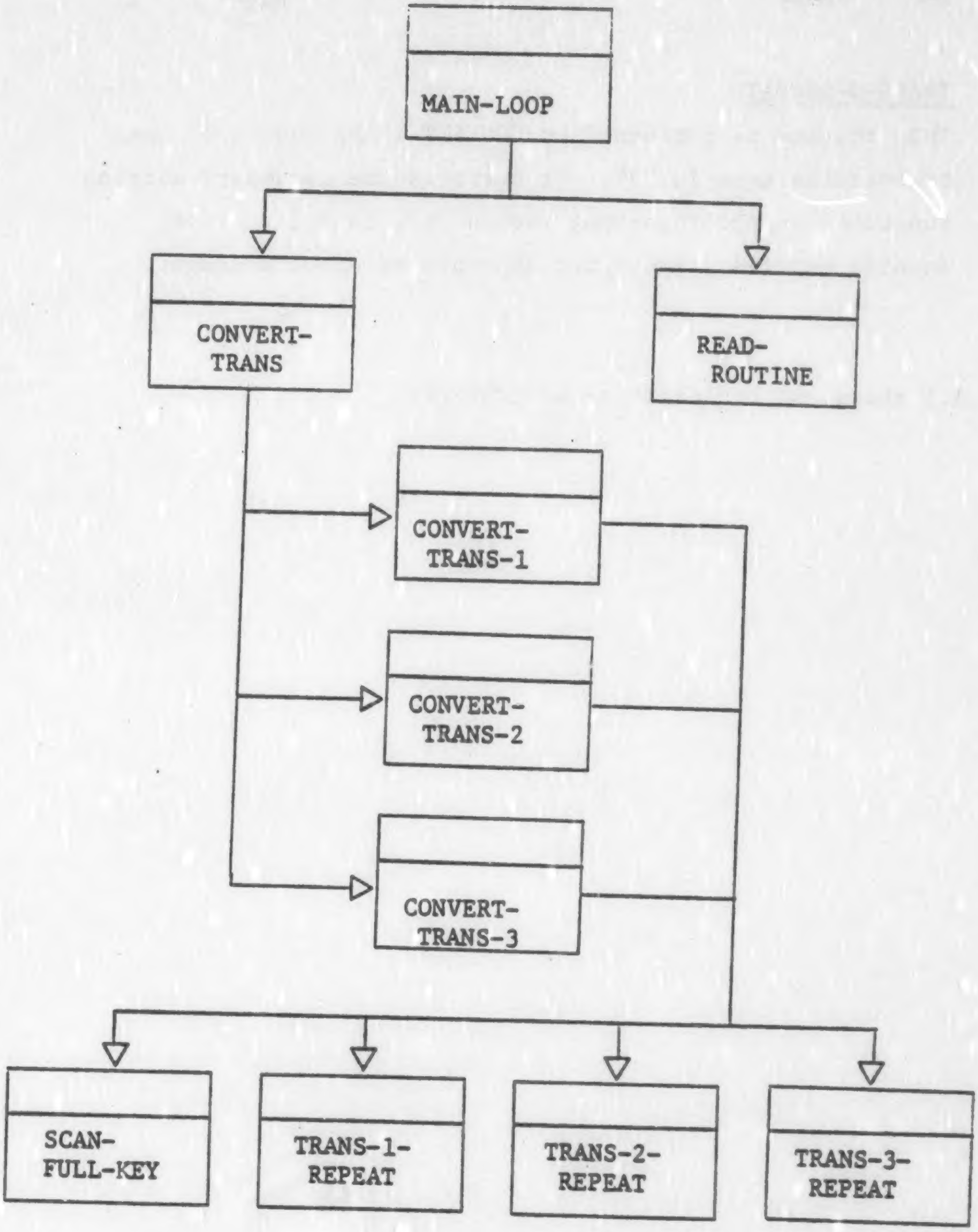
- TRANS-1-REPEAT
  This routine is performed by CONVERT-TRANS when the input transaction form code is "1". It performs the necessary editing functions on the readings and in the case of invalid entries, prints out appropriate error messages.

- TRANS-2-REPEAT
  This routine is performed by CONVERT-TRANS when the input transaction code is "2". It performs necessary editing functions on the repeating fields and, in the case of invalid entries, prints out appropriate error messages.

- TRANS-3-REPEAT

  This routine is performed by CONVERT-TRANS when the input transaction code is "3". It performs the necessary editing functions on the repeating fields and, in the case of invalid entries, prints out appropriate error messages.

Figure 5.1.1 shows the organization of TXTREDIT.



TXTREDIT - Organization
Figure 5.1.1

5.1.2 COMMUNICATION AND DATA FORMATS

The following COBOL working storage section fields are the major control and data areas internal to the Transaction Editor Program.

- END-OF-FILE-SW

  When equal to TRUE, indicates that an end-of-file has occurred on the input transaction file.

- END-OF-JOB-SW

  When equal to TRUE, indicates a serious error has occurred in processing. Program execution is terminated.

- FULL-SCAN-SW

  Used by the routines which scan the Form 2 and Form 3 transactions. When equal to FALSE, indicates that only the fields in the repeating segments are to be scanned rather than the entire key.

- MAXIMUM-VALUES

  A table containing the maximum values of certain parameter/unit code combinations. Any reading exceeding a value in this table will be rejected.

- **WORK-TRANSACTION**

  The area in which the internal format transaction is built.

5.1.3 ROUTINES

The following are internal subroutines of the Transaction Editor program:

- **LOCATE-MAX-VAL**
  Searches the MAXIMUM-VALUES TABLE ATTEMPTING to match the parameter and unit codes in the transaction with those in the table.

- **SEARCH-FOR-PARM**
  Searches the key portion of the parameter, method, unit codes table attempting to match the combination in the transaction with one in the table. If no match is found, the field in error in the transaction is flagged by a diagnostic message.

- **SEARCH-FOR-SITE**
  Searches the valid site code table attempting to match the site identification in the transaction with an entry in the table. If no match is found, the field in error in the transaction is flagged by a diagnostic message.

5.1.4 OPTION CARD

One option card may be used to specify the information to be printed by the Transaction Edit Program. To pass information to the program, code one or more keyword parameters in the operand field of the option card. The format of the option card is given in Figure 5.1.4-1. When a keyword is identified it is checked for the presence or absence of the prefix NO, as appropriate. The program default options are indicated by an underlined word in the following section of the text entitled Valid Transaction Edit Keywords. The program options are summarized by the following rule:

> *Except for error (E-level) messages, you must take action to obtain any confirmation listings.*

General Rules

- The Transaction Edit option card may be omitted, if desired. If the option card is omitted, the default options NOLIST, NOFLAGW apply.
- If the option card is present, there must be only one card and all keywords must be punched within columns 1 through 72, inclusive.
- Keyword parameters may be entered in any order.
- At least one space must appear between two successive keyword parameters. Two or more successive spaces are treated as a single space.

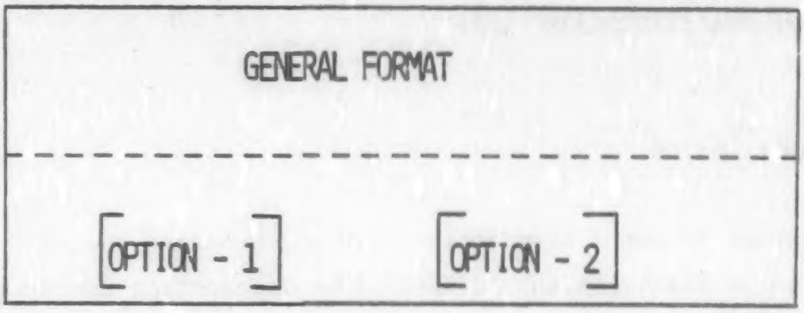


Figure 5.1.4-1. General Format of Transaction Edit Option Card

- A comma may be used as a separator between successive keywords instead of, or in addition to a space. A space may precede and/or follow the comma when the comma is used as a separator.

Valid Keywords for Transaction Edit

LIST
NOLIST (Default Option)

Indicates whether or not a transaction card which passes the edit criteria is to be listed on the AQDHS-II Edit Transaction Confirmation Listing. If at least one logical record from a transaction is accepted, the transaction card is printed if the LIST option is specified. If any logical records on the transaction card are in error, the transaction card is printed on the AQDHS-II Edit Transaction Diagnostic Messages Listing regardless of the option specified. If the LIST option is specified, the erroneous transactions are listed separately from the valid transactions.

FLAGW
NOFLAGW (Default Option)

Indicates whether or not warning messages are to be listed on the AQDHS-II Edit Transaction Diagnostic Messages listing. The E-level (error messages) are always printed and may not be suppressed.

5.1.5 Transaction Editor Diagnostic Messages

TRE001E ERROR: COLUMN 01 - INVALID TRANSACTION CODE - CARD REJECTED

The only valid transaction codes are 1, 2, and 3.

ACTION: CORRECT THE TRANSACTION CODE AND RE-SUBMIT.

TRE002E ERROR: COLUMN 01 - NON-NUMERIC TRANSACTION CODE - CARD REJECTED

The only valid transaction codes are 1, 2, and 3.

ACTION: CORRECT THE TRANSACTION CODE AND RE-SUBMIT.

TRE003E ERROR: COLUMN 80 - INVALID ACTION CODE - CARD REJECTED

The only valid action codes are 1 (Delete), 2 (Add) and 3 (Change).

ACTION: CORRECT THE ACTION CODE AND RE-SUBMIT.

TRE004E ERROR: COLUMN 80 - NON-NUMERIC ACTION CODE - CARD REJECTED

The only valid action codes are 1 (Delete), 2 (Add) and 3 (Change)

ACTION: CORRECT THE ACTION CODE AND RE-SUBMIT.

TRE005E ERROR: COLUMN xx - INVALID TIME CODE - CARD REJECTED

The time code beginning in Column xx is invalid. The valid time codes are shown in Table 3, Appendix A, Page 149 of this manual.

ACTION: CORRECT THE TIME CODE AND RE-SUBMIT.

TRE006E ERROR: COLUMN 02 - NON-NUMERIC STATE CODE - CARD REJECTED

ACTION: CORRECT THE STATE CODE AND RE-SUBMIT.

TRE007E ERROR: COLUMN 02 - INVALID STATE CODE - CARD REJECTED

State Code is not in the site file.
ACTION: CORRECT THE STATE CODE AND RE-SUBMIT

TRE008E ERROR: COLUMN xx - NON-NUMERIC AREA CODE - CARD REJECTED
ACTION: CORRECT THE AREA CODE AND RE-SUBMIT.

TRE009E ERROR: COLUMN xx - NON-NUMERIC SITE CODE - CARD REJECTED

ACTION: CORRECT THE SITE CODE AND RE-SUBMIT.

TRE010E ERROR: COLUMN xx - NON-ALPHABETIC AGENCY CODE - CARD REJECTED

ACTION: CORRECT THE AGENCY CODE AND RE-SUBMIT.

TRE011E ERROR: COLUMN xx - NON-NUMERIC PROJECT CODE - CARD REJECTED

ACTION: CORRECT THE PROJECT CODE AND RE-SUBMIT.

TRE012E ERROR: COLUMN xx - NON-NUMERIC TIME CODE - CARD REJECTED

The time code beginning in Column xx is invalid. The valid time codes are shown in Table 3, Appendix A, Page 149 of this manual.

ACTION: CORRECT THE TIME CODE AND RE-SUBMIT.

TRE013E ERROR: COLUMN xx - NON-NUMERIC YEAR - CARD REJECTED

ACTION: CORRECT THE YEAR AND RE-SUBMIT.

TRE014E ERROR: COLUMN xx - YEAR LESS THAN SIXTY - CARD REJECTED

SAROAD does not accept data prior to 1960.

TRE015E ERROR: COLUMN xx - NON-NUMERIC MONTH - CARD REJECTED

ACTION: CORRECT THE MONTH AND RE-SUBMIT.

TRE016E ERROR: COLUMN xx - MONTH ZERO OR GREATER THAN TWELVE - CARD REJECTED

ACTION: CORRECT THE MONTH AND RE-SUBMIT.

TRE017E ERROR: COLUMN xx - NON-NUMERIC DAY - CARD REJECTED

ACTION: CORRECT THE DAY AND RE-SUBMIT.

TRE018E ERROR: COLUMN xx - INVALID DAY - CARD REJECTED

ACTION: CORRECT THE DAY AND RE-SUBMIT.

TRE019E ERROR: COLUMN xx - NON-NUMERIC START HOUR - CARD REJECTED

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

TRE020E ERROR: COLUMN xx - DECIMAL POSITION GREATER THAN FOUR - CARD REJECTED

AQDHS-II currently will not accept a decimal position greater than 4.

ACTION: CHANGE UNITS, DATA VALUE, AND DECIMAL CODE AND RE-SUBMIT.

TRE021E ERROR: COLUMN xx - NON-NUMERIC PARAMETER CODE - CARD REJECTED

ACTION: CORRECT THE PARAMETER CODE AND RE-SUBMIT.

TRE022E ERROR: COLUMN xx - NON-NUMERIC METHOD CODE - CARD REJECTED

ACTION: CORRECT THE METHOD CODE AND RE-SUBMIT.

TRE023E ERROR: COLUMN xx - NON-NUMERIC UNITS CODE - CARD REJECTED

ACTION: CORRECT THE UNITS CODE AND RE-SUBMIT.

TRE024E ERROR: COLUMN xx - NON-NUMERIC DECIMAL POSITION - CARD REJECTED

ACTION: CORRECT THE DECIMAL POSITION AND RE-SUBMIT.

TRE025E ERROR: COLUMN 21 - START HOUR GREATER THAN TWENTY-THREE - CARD REJECTED

The valid Start Hour range for Form 1 (Hourly) data is 0 through 23.

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

TRE026W WARNING: COLUMN xx - START HOUR GREATER THAN TWENTY-THREE - CARD ACCEPTED

An erroneous Start Hour has been coded, however this will not affect the operation of the programs or the file sequence. (for forms 2 & 3)

ACTION: NO ACTION REQUIRED.

TRE027E ERROR: COLUMN xx - NON-NUMERIC READING - CARD REJECTED

ACTION: CORRECT THE READING AND RE-SUBMIT.

TRE028E ERROR: RECORD CONTAINS NO READINGS - CARD REJECTED

Transaction contains no readings for Form 1 data or no key information and readings for Form 2 and Form 3 data.

ACTION: CORRECT AND RE-SUBMIT.

TRE029E ERROR: COLUMN 19 - NON-NUMERIC NUMBER OF SAMPLES - CARD REJECTED

ACTION: CORRECT THE NUMBER OF SAMPLES AND RE-SUBMIT.

TRE030E ERROR: COLUMN 22 - INVALID COMPOSITE TIME CODE - CARD REJECTED

The only valid Composite Time Codes are 1-9, A, and B.

ACTION: CORRECT THE COMPOSITE TIME CODE AND RE-SUBMIT.

TRE031E ERROR: COLUMN 21 - NON-NUMERIC COMPOSITE TYPE - CARD REJECTED

The only valid Composite Type codes are 1 (Quarterly), 2 (Seasonal), 3 (Monthly), 4 (Weekly) and 5 (Annual).

ACTION: CORRECT THE COMPOSITE TYPE AND RE-SUBMIT.

TRE032E ERROR: COLUMN 17 - NON-NUMERIC PERIOD - CARD REJECTED

The Composite Period field contains invalid data.

ACTION: CORRECT AND RE-SUBMIT.

TRE033E ERROR: COLUMN 17 - INVALID PERIOD - CARD REJECTED

The Composite Period field contains invalid data.

ACTION: CORRECT AND RE-SUBMIT.

TRE034E ERROR: COLUMN 21 - INVALID COMPOSITE TYPE - CARD REJECTED

ACTION: CORRECT AND RE-SUBMIT.

TRE035E ERROR: COLUMN xx - INVALID AREA CODE - CARD REJECTED

The Area Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE036E ERROR: COLUMN xx - INVALID SITE CODE - CARD REJECTED

The Site Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE037E ERROR: COLUMN xx - INVALID AGENCY CODE - CARD REJECTED

The Agency Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE038E ERROR: COLUMN xx - INVALID PROJECT CODE - CARD REJECTED

The Project Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE039E ERROR: COLUMN xx - INVALID PARAMETER CODE - CARD REJECTED

The Parameter Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE040E ERROR: COLUMN xx - INVALID METHOD CODE - CARD REJECTED

The Method Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE041E ERROR: COLUMN xx - INVALID UNITS CODE - CARD REJECTED

The Units Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE042E ERROR: COLUMN xx - READING EXCEEDS MAXIMUM PERMITTED - CARD REJECTED

Card presently rejected by AQDHS-II.

TRE043E ERROR: COLUMN xx - READING EXCEEDS MAXIMUM PERMITTED - GROUP yy REJECTED

Group presently rejected by AQDHS-II.

TRE044E ERROR: COLUMN 79 - INVALID STATUS FLAG - CARD REJECTED

Blank and S are the only valid Status Flag values.

ACTION: CORRECT AND RE-SUBMIT.

TRE045E ERROR: COLUMN xx - INVALID START HOUR (READINGS SPAN END OF DAY) - REJECTED

ACTION: CORRECT AND RE-SUBMIT.

* TRE046E ERROR: INVALID OPTION - RUN ABORTED

ACTION: CORRECT AND RE-SUBMIT.

TRE047E ERROR: COLUMN xx - INVALID AREA CODE - GROUP yy REJECTED

The Area Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE048E ERROR: COLUMN xx - INVALID SITE CODE - GROUP yy REJECTED

The Site Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE049E ERROR: COLUMN xx - INVALID AGENCY CODE - GROUP yy REJECTED

The Agency Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE050E ERROR: COLUMN xx - INVALID PROJECT CODE - GROUP yy REJECTED

The Project Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE051E ERROR: COLUMN xx - INVALID PARAMETER CODE - GROUP yy REJECTED

The Parameter Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE052E ERROR: COLUMN xx - INVALID METHOD CODE - GROUP yy REJECTED

The Method Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE053E ERROR: COLUMN xx - INVALID UNITS CODE - GROUP yy REJECTED

The Units Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE054E ERROR: COLUMN xx - DECIMAL POSITION GREATER THAN FOUR - GROUP yy REJECTED

AQDHS-II currently will not accept a decimal position greater than 4.

ACTION: CHANGE UNITS, DATA VALUE, AND DECIMAL CODE AND RE-SUBMIT.

TRE055E ERROR: COLUMN xx - NON-NUMERIC DECIMAL POSITION - GROUP yy REJECTED

ACTION: CORRECT THE DECIMAL POSITION AND RE-SUBMIT.

TRE056E ERROR: COLUMN xx - NON-NUMERIC AREA CODE - GROUP yy REJECTED

ACTION: CORRECT THE AREA CODE AND RE-SUBMIT.

TRE057E ERROR: COLUMN xx - NON-NUMERIC SITE CODE - GROUP yy REJECTED

ACTION: CORRECT THE SITE CODE AND RE-SUBMIT.

TRE058E ERROR: COLUMN xx - NON-NUMERIC PARAMETER CODE - GROUP yy REJECTED

ACTION: CORRECT THE PARAMETER CODE AND RE-SUBMIT.

TRE059E ERROR: COLUMN xx - NON-NUMERIC METHOD CODE - GROUP yy REJECTED

ACTION: CORRECT THE METHOD CODE AND RE-SUBMIT.

TRE060E ERROR: COLUMN xx - NON-NUMERIC UNITS CODE - GROUP yy REJECTED

ACTION: CORRECT THE UNITS CODE AND RE-SUBMIT.

TRE061E ERROR: COLUMN xx - NON-NUMERIC READING - GROUP yy REJECTED

ACTION: CORRECT THE READING AND RE-SUBMIT.

TRE062E ERROR: COLUMN xx - NON-NUMERIC START HOUR - GROUP yy REJECTED

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

---

*Serious Error - Do Not Use Any Output From This Run.

xx - Column number

yy - Group number

5.2 FILE MAINTENANCE

The File Maintenance program is used to create and maintain the AQDHS master file. Internal format transactions generated by the Transaction Editor program are used as input to the file maintenance program to accomplish these functions. These internal transactions must be sorted into master file sequence before they are input into the File Maintenance Program (see cataloged procedure AQSFUPDT).

Each internal transaction either adds data to, replaces (changes) data in, or deletes records from the AQDHS-II master file. Any combination of transactions may be entered in one execution of the File Maintenance program with the following exception: each composite type transaction (annual, weekly, etc.) must be entered in a separate execution of the program. Otherwise, the file maintenance program will terminate rather than produce a duplicate record.

When a master file record is created and all readings are not supplied, all blank fields up to the last supplied reading are filled with nines to indicate a null reading. These null fields may then be updated by either an Add or Change transaction. It is illegal to attempt to Change a non-existing reading or to Add a reading to an existing reading.

If a reading has been unchanged since its submission to SAROAD, its status flag is 'S'. If it has been changed since submission to SAROAD, its status flag is 'C'. Its status flag is 'A' if it has not yet been sent to SAROAD.

The File Maintenance error message that follows serves as an example of the format of a message produced by this program.

***FMT003E NO MATCHING KEY FOUND ON MASTER FILE -
RECORD REJECTED

The three asterisks at the left are used to highlight an error message. FMT identifies this as a File Maintenance error message. The digits 003 are the identifying number of the message. E is the level of severity in the error. The text describes the error and the action taken by the program. RECORD REJECTED means the internal transaction has been rejected. The severity level symbols used in this program have the same meaning as that given in the Transaction Edit Program. A complete list of these error messages is included in Section 5.2.5.

Refer to Figure 2.2-1.1 for the format of the master file records.

The name of the load module is FXFILMNT.

5.2.1 ORGANIZATION

The following are the main modules of the File Maintenance program.

- MAIN-LOOP
  Performed by ROOT-SEGMENT, this routine (on the basis of the transaction action code) performs lower level segments to either add a record or data to the file, change a record in the file or delete a record from the file.

- FM-ADD
  This routine, performed by MAIN-LOOP, controls the adding of records or data to the system master file. It performs lower level routines to locate the place in the old master where the record should be added and adds the record to the new master file.

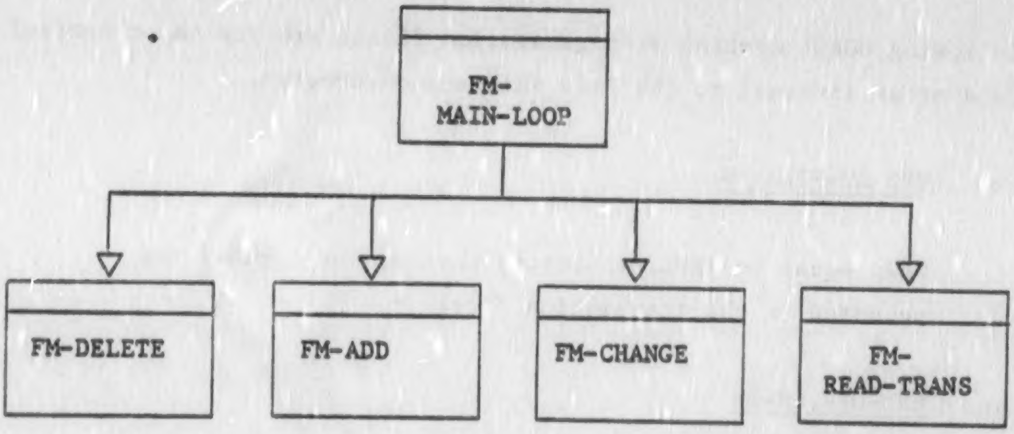
- FM-CHANGE
  This routine, performed by MAIN-LOOP, controls the changing of a record on the system file. It performs lower level routines that locate the record to be changed, makes the appropriate changes, and writes updated record onto the file.

- FM-DELETE
  This routine, performed by MAIN-LOOP, controls the deletion of a record from the system master file. It performs lower level routines to locate the record to be deleted and deletes it from the file.

- FM-READ-TRANS

  Performed by MAIN-LOOP, this routine reads the next record from the transaction file.

Figure 5.2.1 shows the organization of FXFILMNT.



FXFILMNT - Organization

Figure 5.2.1

5.2.2 COMMUNICATION AND DATA FORMATS

The following COBOL working storage section fields are the major control and data areas internal to the File Maintenance program.

- END-OF-FILE-SW

  When equal to TRUE, indicates that an end-of-file has occurred on the transaction file.

- END-OF-JOB-SW

  When equal to TRUE, indicates a serious error has occurred in processing. Program execution is terminated.

- LAST-TRANS-WAS-DELETE-SW

  When equal to TRUE, indicates that the preceding transaction deleted a record from the master file.

- MSTR-RECORD-LOCATED-SW

  Used by LOCATE-MSTR to indicate the positioning of the master file. When equal to 0, the master file has not been properly positioned. When equal to 1, the master file has been positioned and the key of the transaction is greater than the preceding master file record but less than the following master file record. The only valid action which may be taken is to build (add) a new record from the transaction. When equal to 2, the master file has been positioned and a matching key has been found. Data may be added or changed in the record or the record may be deleted.

5.2.3 ROUTINES

The following are internal subroutines of the File Maintenance program.

- FM-COMPUTE-SUB

  This routine calculates the position within the master file record into which the first reading on the transaction will be placed.

- FM-COPY-MSTR

  This routine copies records from the old master file into the new master file.

- FM-LOCATE-MSTR

  This routine uses the key of the transaction to position the master file so that the action indicated on the transaction may be performed.

- FM-SCAN-RECORD

  This routine scans the new master file record before it is written to the new master file. Any readings which have not been supplied by this point will be filled with nines to indicate that they are null.

5.2.4 OPTION CARD

One option card may be used to specify the information to be printed by the File Maintenance Program and to specify additional program functions to be used for debugging purposes only.

To pass information to the program, code one or more keyword parameters in the operand field of the option card. The format of the option card is given in Figure 5.2.4-1. When a keyword is identified, it is checked for the presence or absence of the prefix NO, as appropriate. The program default options are indicated by an underlined word in the following seciton of the text entitled Valid File Maintenance Keywords. The program options are summarized by the following rule:

> *Except for error messages, you must take specific action to obtain any confirmation listings.*

General Rules

- The File Maintenance Option card may be omitted, if desired. If the option card is omitted, the default options NOLIST, NOSEQ, NOSNAP, NOFLAGW apply.
- If the option card is present there must be only one card and all keywords must be punched within columns 1 through 72, inclusive.
- Keyword parameters may be entered in any order.

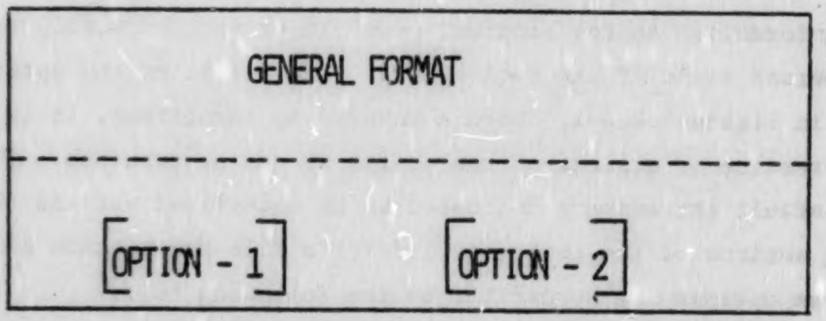


Figure 5.2.4-1. General Format of File Maintenance Option Card

- At least one space must appear between two successive keyword parameters. Two or more successive spaces are treated as a single space.
- A comma may be used as a separator between successive keywords, instead of, or in addition to a space. A space may precede and/or follow the comma when the comma is used as a separator.
- Errors detected in any option field will cause the run to be aborted.

Valid Keywords for File Maintenance

LISTTRAN

Indicated whether the standard AQDHS-II Internal Transaction listing is to be produced. The listing is not produced unless the keyword LISTTRAN or the keyword LIST is in effect, i.e., the default is no listing. Note the prefix NO is not supported for this option.

LISTOLD

Indicates whether the standard AQDHS-II Old Master Listing is to be produced. The default is no listing unless the option LISTOLD or the keyword LIST is in effect. Note the prefix NO is not supported for this option.

LISTNEW

Indicates whether the standard AQDHS-II New Master Listing is to be produced. The default is no listing unless the option LISTNEW or LIST is in effect. Note the prefix NO is not supported for this option.

LIST

NOLIST (Default Option)

Indicates whether or not the three standard File Maintenance Confirmation Listings are to be produced. The three standard information listings are:

- AQDHS-II Internal Transaction Record
- AQDHS-II Old Master Listing
- AQDHS-II New Master Listing

1. When the LIST option is in effect, the result is the same as if each of the following options were specified separately:

   LISTTRAN
   LISTOLD
   LISTNEW

2. If any combination of fewer than three listings are required, the keyword options may be specified in any combination and in any order.

3. When NOLIST is in effect, the three standard File Maintenance Confirmation Listings are not produced. The three separate list options (LISITRAN, LISTOLD, LISTNEW) must not be specified when NOLIST is in effect.

FLAGW
NOFLAGW (Default Option)

Indicates whether or not warning messages are to be listed. An example of a warning message produced by this program is:

```
***FMT002W READING 01 - VALUE NOT SPECIFIED -
FIELD FILLED WITH NINES
```

The default is NOFLAGW. The E-level (error messages) are always printed and may not be suppressed.

DE-BUGGING OPTIONS

SEQ
NOSEQ (Default Option)

The File Maintenance Program automatically checks file sequence (both OLD and NEW MASTER). The SEQ and SNAP options are used for de-bugging purposes only. Therefore, the user should not normally specify these options since they will greatly increase the operating costs of the File Maintenance Program. The SEQ option specifies whether each record is to be checked for correct file sequence before writing the record to the updated (NEW) AQDHS-II Master File. The default is no sequence checking. If the SEQ option is in effect and the test shows that the record to be written will create an out-of-sequence condition, an orderly termination of program execution will occur. The following error message will be printed:

```
***FMT005E ERROR: NEW MASTER WILL BE OUT OF SEQUENCE,
RUN ABORTED
```

If this error occurs, the job will terminate prematurely. *The New Master File is unusable.*

SNAP

NOSNAP (Default Option)

Indicates whether or not input/output buffers, key working storage areas and the control switches are to be printed. The default is NOSNAP. If SNAP is in effect, SEQ must also be in effect.

When the SNAP option is in effect, the I/O buffers, control switches, and selected areas of working storage are formatted and printed.

5.2.5 File Maintenance Diagnostic Messages

FMT001E ERROR: READING xx - ATTEMPT TO ADD DATA TO EXISTING READING - DATA REJECTED

ACTION: EXAMINE DATA IN THE TRANSACTION AND RE-SUBMIT ACCORDINGLY.

FMT002W WARNING: READING xx VALUE NOT SPECIFIED - FIELD FILLED WITH NINES.

ACTION: NONE.

FMT003E ERROR: NO MATCHING KEY FOUND ON MASTER FILE - RECORD REJECTED

ACTION: CORRECT TRANSACTION AND RE-SUBMIT.

FMT004E ERROR: READING xx - ATTEMPT TO CHANGE NON-EXISTING READING - DATA REJECTED

ACTION: EXAMINE DATA IN THE TRANSACTION AND RE-SUBMIT ACCORDINGLY.

* FMT005E ERROR: NEW MASTER WILL BE OUT OF SEQUENCE - RUN ABORTED

ACTION: SORT THE TRANSACTIONS AND RE-SUBMIT.

* FMT006E ERROR: CONFLICTING OPTIONS - RUN ABORTED

ACTION: CORRECT THE OPTIONS CARD AND RE-SUBMIT.

FMT007E ERROR: MORE THAN ONE IT-COMPOSITE-TYPE - SKIPPING TO NEXT VALID TYPE

ACTION: SUBMIT ONLY ONE COMPOSITE TYPE PER FILE MAINTENANCE RUN.

Non-Numbered Errors

```
*       ***DUPLICATE RECORD IN OLD MASTER FILE***
        MASTER FILE RECORD KEY 1 = xxx
        MASTER FILE RECORD KEY 2 = xxx
        TRANSACTION RECORD KEY = xxx
        ***RUN TERMINATED***
        ***PLEASE REPORT THIS ERROR TO NADB***
```

```
*      ***MASTER FILE IS OUT OF SEQUENCE***
       MASTER FILE RECORD KEY 1 = xxx
       MASTER FILE RECORD KEY 2 = xxx
       TRANSACTION RECORD KEY = xxx
       ***RUN TERMINATED***
       ***PLEASE REPORT THIS ERROR TO NADB***

*      ***NEW MASTER FILE WILL BE OUT OF SEQUENCE***
       MASTER FILE RECORD KEY 1 = xxx
       MASTER FILE RECORD KEY 2 = xxx
       TRANSACTION RECORD KEY = xxx
       ***RUN TERMINATED***
       ***PLEASE REPORT THIS ERROR TO NADB***
```

---

*Serious Error - Do Not Use Any Output From This Run.

xx - Column number

6.0 DATA RETRIEVAL

AQDHS-II has a retrieval program-set to allow the user to selectively retrieve data from the master file. Retrieval selectivity is completely at the option of the user and can be based upon criteria related to any key or data field in a master file record. In general the selection can be based upon:

- Location
- Time
- Type of data
- Data magnitude
- Status

Two modes of operation are available. These modes are a standard mode and a sliding average mode. In the standard mode, master file records are selected according to user defined attributes and copied without change to a standard answer file. This standard mode provides data which may be used for further processing by all data analysis and report generation programs except the sliding average program.

In the sliding average mode, master file records are again selected according to user defined attributes. However, two changes are accomplished before the records are copied to the sliding average answer file. First each record retrieved is changed, in the answer file only, to reflect that it is now a sliding average record. Secondly, the program may automatically generate and insert extra records, again only in the answer file, to provide data necessary for a wrap around capability during the sliding average computation performed by another program.

NOTE: The answer file produced in the sliding answer mode can only be used by the sliding average program.

An example of the sliding average mode retrieval capability is as follows. Assume the user wanted to compute a sliding average from hourly data for the period 10 March 1970 to 30 March 1970, the retrieval program, in sliding average mode, would automatically select the record for 9 March 1970 if the record exists. If no data for 9 March 1970 existed in the master file, the program would generate an extra output record for that date containing null values in the readings fields. This data would then permit the sliding average to be computed for all hours including the first hour of 10 March 1970. (i.e., this accomplishes the wrap around capability).

Similarly if the records in the master were discontinuous, a null record would be generated at the beginning of each new series. For example, for the period above, if days 16, 17 and 25 were not in the Master file, null records would be generated for days 9, 17 and 25. Note that day 16 would be missing from the answer file and, hence, from any later display of the sliding average answer file. No record for day 16 will be generated since the day 17 generated record will provide the wrap around capability for day 18 and a generated record with null values preceeding a generated record with null values would be totally useless and meaningless.

The retrieval package consists of two programs which are automatically operated in sequence by the cataloged procedure. The two programs serve the purposes first of processing the retrieval specifications proposed by the user and secondly of retrieving data from the master file.

The cataloged procedure performs the requested retrieval in a multistep job as illustrated in Figure 6.0-1.

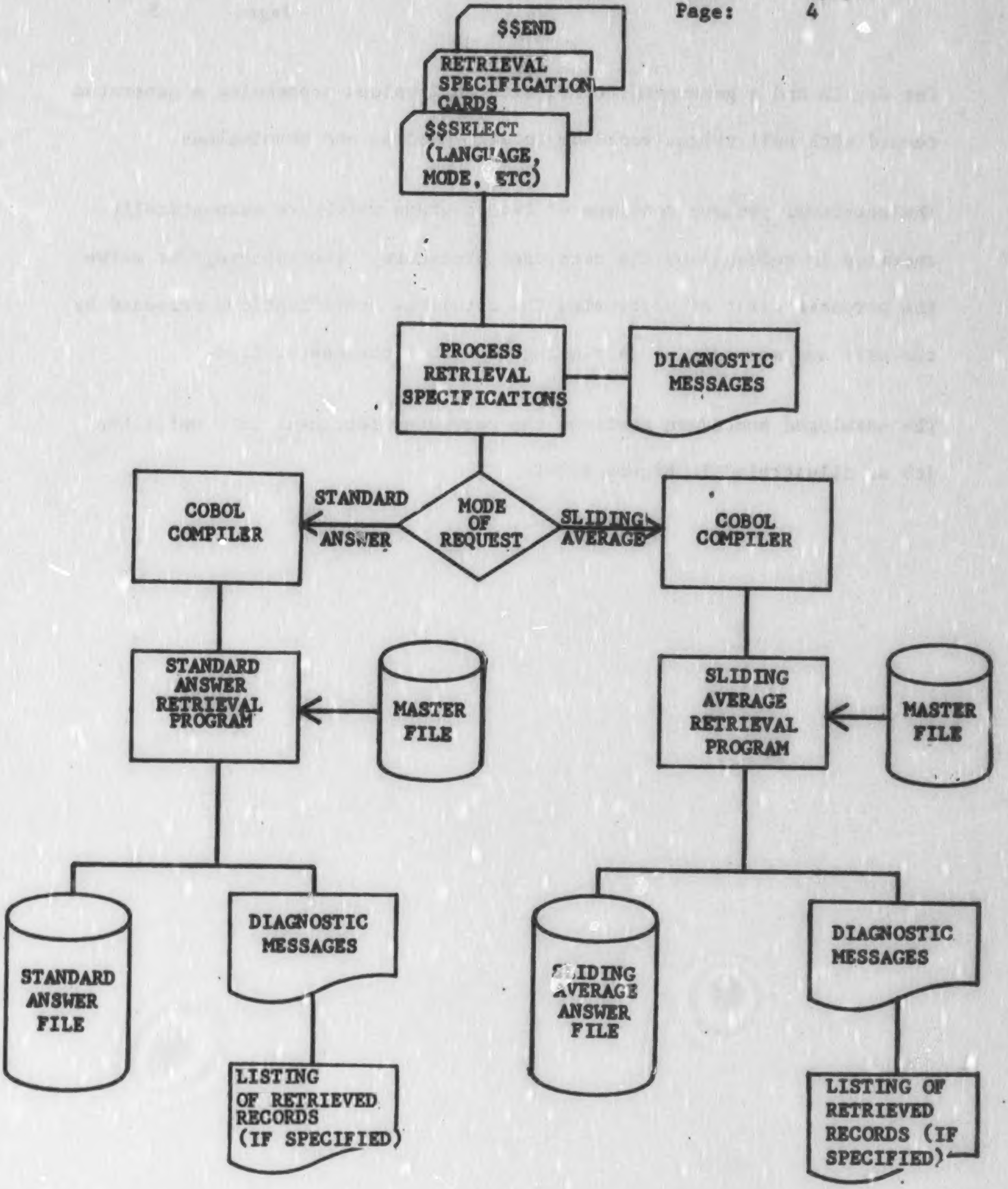

$$END
RETRIEVAL SPECIFICATION CARDS
$$SELECT (LANGUAGE, MODE, ETC)
PROCESS RETRIEVAL SPECIFICATIONS
DIAGNOSTIC MESSAGES
MODE OF REQUEST
STANDARD ANSWER
SLIDING AVERAGE
COBOL COMPILER
COBOL COMPILER
STANDARD ANSWER RETRIEVAL PROGRAM
MASTER FILE
SLIDING AVERAGE RETRIEVAL PROGRAM
MASTER FILE
STANDARD ANSWER FILE
DIAGNOSTIC MESSAGES
LISTING OF RETRIEVED RECORDS (IF SPECIFIED)
SLIDING AVERAGE ANSWER FILE
DIAGNOSTIC MESSAGES
LISTING OF RETRIEVED RECORDS (IF SPECIFIED)

FIGURE 6.0-1 SCHEMATIC OF RETRIEVAL PROCESS

6.1 RETRIEVAL LANGUAGE PROCESSOR

The Retrieval Language Processor program generates the actual Retrieval program based on English-like requests entered by the user. These retrieval requests are edited and, if no severe errors are found, the Retrieval program is compiled and executed to extract any data meeting the user's specification. Those records in the master file which have qualified are placed in a separate answer file for subsequent processing. The records in the standard answer file are in the same order and have the same format as the records in the master file. Therefore, the standard answer file may be used by any program which accepts the standard master file for processing. Care should be used, however, as the standard answer file is a subset of the master file. Consequently, any changes to the answer file will not necessarily be reflected in the master file. The answer file created by a sliding average request should not, as previously stated, be used by any program except the sliding average program.

Every retrieval request consists of two control cards and one of the three types of retrieval specification statements. The control cards are the $$SELECT and $$END cards. The $$SELECT specifies the beginning of a retrieval request and several other items of information for the retrieval. The $$END card indicates the end of the retrieval specifications. It contains no additional information.

The three types of retrieval specification statements are: AQDHS-II Retrieval Language Statements, COBOL Language Statements placed in-line, COBOL Language Statements residing in copy members.

The contents and meaning of the control cards and the types of Retrieval Specifications will be explained in detail later in this section.

The format for the Retrieval Control Cards is specified in Figure 6.1-1.

Retrieval Control Cards

Columns	Format	Symbol	Description
1 - 8	A - A	Alphabetic	Card type
9			Unused
10-13	AAAA	Alphabetic	Language Keyword
14-15			Unused
16-23	X - X	Alphameric	Member Name
24			Unused
25-32	AAAAAAAA	Alphabetic	Mode Keyword
33			Unused
34-39	AAAAAA	Alphabetic	List Option
40-42			Unused
43-50	AAAAAAAA	Alphabetic	Local Data
51			Unused
52-59	AAAAAAAA	Alphabetic	Repeating Routine
60-80			Unused

Figure 6.1-1 Retrieval Control Card Format

6.1.1 Retrieval Control Card Descriptions

The meaning of the various fields are:

Card Type:	Identifies the type of control card. Valid entries are: $$SELECT: Specifies the beginning of a retrieval request. $$END: Specifies the end of a retrieval request and must appear alone in the card.
Language Keyword:	Identifies the type of retrieval language to be used. Valid entries are: blank: Specifies that retrieval specifications in AQDHS-II language will be used. USER: Specifies that retrieval specifications will be COBOL language statements.
Member Name:	If the USER option for the language keyword is used, then the member name identifies where the COBOL language statements reside. Valid entries are: blank: Specifies that the COBOL retrieval statements will be placed after the $$SELECT card.

	member name:	Specifies the name of the member of an external library where the COBOL retrieval statements reside. These COBOL statements must be stored in the external source library under the "member name" prior to the execution of this type of retrieval.
Mode Keyword:	**Identifies the mode of retrieval.**	
	Valid entries are:	
	blank:	**Standard answer file is to be created.**
	Sliding:	**Sliding average answer file is to be created.**
List Option:	**Identifies whether the records retrieved are to be printed or not.**	
	Valid entries are:	
	blank:	**Do not list records.**
	NOLIST:	**Do not list records.**
	LIST:	**Print all records which were retrieved.**

User Defined Data: Specifies the name of the member in an external source library containing a data structure at the 01-level defined according to the rules of COBOL. It is used to define variables used in locally-defined routines. If the user defined data field is non-blank, the member is copied into Working Storage Section and assigned the label

```
01  USER-DATA-STRUCTURE
```

when the retrieval program is generated.

User Defined Subroutine: Specifies the name of the member in an external library containing a user defined subroutine. The user defined subroutine can be invoked only by the user written COBOL statements defined in the above Member-Name. The user defined subroutine must be a closed subroutine; the paragraph name, USER-REPEATING-ROUTINE, is automatically generated by the Language Processor. In order to invoke the user defined subroutine, the "language keyword" must be blank. The "member name" must reference a user defined external source library member, and there must be a valid AQDHS-II retrieval language request following the $$SELECT card.

The Repeating Routine is normally, but not necessarily, the object of a Perform statement and used where values in the repeating field must be scanned for the purpose of accumulating counts and sums or further qualifying the record. This option in conjunction with the "User Defined Data" option and the "Member-Name" option will provide the user with expanded capabilities, provided the user has some expertise in COBOL.

6.1.2 AQDHS-II RETRIEVAL LANGUAGE

The AQDHS-II retrieval specification consists of one or more relational expressions which in combination constitute a logical expression. The logical expression specifies a series of comparisons that are to be made against specified fields in a master file record. As a result of the comparisons, the logical expression can either be true or false. If the logical expression is true, the master file record is selected.

Each relational expression consists of a subject name, an optional negation flag, a relational operator, and an object name. A series of relational expressions are separated by a Boolean connector.

The subject name field and object name field may each contain only a valid data name (see Figure 6.1.2). An invalid data name or missing apostrophes will cause the retrieval to abort. Parentheses may be used for grouping provided that the first occurrence of a repeating data name is not enclosed in parentheses. After the first occurrence of a repeating name, parentheses may be used freely. Parentheses must be balanced when the specifications are terminated.

The negation field must contain the negation character, N, or blank. Any other character will result in a warning message. The program will then assume that negation was intended and continue processing.

The Boolean operator field may contain blanks or the words AND or OR. Blanks in this field signal the end of the retrieval specification and terminate editing. The program then expects that the next card will be the $$END card. The words AND or OR indicate that another relationship follows and that editing is to continue.

AQDHS-II Retrieval Language Specifications

Columns	Format	Symbol	Description
1 -22	X - X	Alphameric	Subject Name
23			Unused
24	A	Alphabetic	Negation Flag
25			Unused
26	X	Special Character	Relational Operator
27			Unused
28-67	X - X	Alphameric	Object Name
68			Unused
69-71	AAA	Alphabetic	Boolean Operator
72-80			Unused

The meaning of the various fields are:

Subject name: The name of a field in the AQDHS-II master file record whose content is to be tested and compared against the value specified by the object name.

If a name of a field in the master file record is used in this portion it must be one of the names in Figure 6.1.2. The selected name, spelled exactly as shown in Figure 6.1.2 is entered in Columns 1-22 of the Retrieval Language Specification card. If the statement contains parenthesis, the Subject Name must be preceded by the appropriate number of left parenthesis. If a repeating name (denoted by * in Figure 6.1.2) is used, special precautions are necessary. The first time any repeating name is used in a Retrieval Language Specification statement, it must not be enclosed by any parenthesis. After the first repeating name has been used outside of parenthesis, it or any other repeating name may be used without restrictions in regards to parenthesis. (See Precautions and Constraints)

Negation Flag: When non-blank, indicates the Boolean NOT condition. Valid codes are N and space. Enter either N or blank in column 24.

Relational Operator: Indicates the relationship to be tested between the subject name and the object name. Valid codes are:

= equal
> greater than
< less than

Enter the valid code in column 26. If column 26 contains any character other than the above valid codes the language processor program ceases to evaluate further retrieval language statements, outputs an error message and terminates execution.

Object name: The name of a field in the AQDHS-II master file record whose content is to be tested, or a literal (enclosed in apostrophes) to be compared against the value specified by the subject name. Code the object name in columns 28-67. The field width for each valid name is given in Figure 6.1.2. The entry must be right adjusted within the apostrophes. Parentheses when used, immediately follow the object name entry.

Boolean Operator: Connects a relationship or group of relationships to another relationship or group of relationships. Valid values are AND or OR. AND indicates that both relationships or groups must be true in order for the entire relationship to be true. OR indicates that if either relationship or group is true, the entire relationship is true. The Boolean operator is coded in columns 69-71. If columns 69-71 are not blank, and do not contain a valid VALUE, the language processor program ceases to evaluate further retrieval statements, outputs an error message and terminates execution.

Columns 23, 25, 27, and 68 must be blank. Unneeded columns in the Subject Name and Object Name fields must be blank. Columns 73-80 may be used to specify card sequence, if desired.

Valid Data Names for Retrieval

ACTION-CODE
AGENCY
AREA-CODE
COMPOSITE-KEY-2
COMPOSITE-PERIOD
COMPOSITE-SAMPLES
COMPOSITE-TIME-CODE
COMPOSITE-TYPE
DATA-FIELD*
DAY-CODE
DECIMAL-CODE
FORM-CODE
IDENT-KEY
KEY-1
KEY-2
KEY-3
METHOD-CODE
MONTH
NBR-OF-READINGS
PARAMETER-CODE
PROJECT
RPTING-SECTION*
SITE
START-HOUR
STATE
STATUS-FLAG*
TIME-CODE
UNIT-CODE
YEAR

* Repeating data names.

Valid Retrieval Data Names

Figure 6.1.2

ACTION-CODE: Indicates the last action performed on the master file record. The only possible values are '2' for Add and '3' for Change. (Field width=1)

AGENCY: Identifies the agency responsible for the sampling. Valid codes are found in Table 4, Appendix H. (Field width=1)

AREA-CODE: Identifies the geographical area in which the samples were taken. (Field width=4)

COMPOSITE-KEY-2: Identifies, as a group, the following fields:

COMPOSITE-PERIOD
COMPOSITE-SAMPLES
COMPOSITE-TYPE
COMPOSITE-TIME-CODE

(Field width=6)

COMPOSITE-PERIOD: Indicates the period during which the composite sample was taken. Valid codes are:

'01' - '04'	Quarterly and Seasonal Composite
'01' - '12'	Monthly Composite
'01' - '52'	Weekly Composite
'00'	Annual Composite

(Field width=2)

Figure 6.1.2 Valid Data Names for Retrieval Specification (Continued)

COMPOSITE-SAMPLES: Indicates the number of individual samples that were composited. (Field width=2)

COMPOSITE-TIME-CODE: Indicates the interval at which the individual composited samples were taken. Valid codes are found in Table 7, Appendix H. (Field width=1)

COMPOSITE-TYPE: Indicates the interval at which the samples are composited. Valid codes are:

'1'	Quarterly Composite
'2'	Seasonal Composite
'3'	Monthly Composite
'4'	Weekly Composite
'5'	Annual Composite

(Field width=1)

*DATA-FIELD: The value of the reading or sample taken. (Field width=4)

DAY-CODE: The day of the month on which the sample was taken. (Field width=2)

DECIMAL-CODE: A single-digit number from 0 to 4 which indicates the number of digits in the reading that are to fall to the right of the decimal point. (Field width=1)

*Repeating Name

Figure 6.1.2 Valid Data Names for Retrieval Specification (Continued)

FORM-CODE: The number of the form used to create the master file record, i.e. 1, 2 or 3. (Field width=1)

IDENT-KEY: Identifies, as a group, the following fields:

KEY-1

KEY-2

KEY-3

(Field width=31)

KEY-1: Identifies, as a group, the following fields:

STATE

AREA-CODE

SITE

AGENCY

PROJECT

TIME-CODE

YEAR

(Field width=15)

KEY-2: Identifies, as a group, the following fields:

MONTH

DAY-CODE

START-HOUR

(Field width=6)

Figure 6.1.2 Valid Data Names for Retrieval Specification (Continued)

KEY-3: Identifies, as a group, the following fields:

PARAMETER-CODE

METHOD-CODE

UNIT-CODE

DECIMAL-CODE

(Field width=10)

METHOD-CODE: Identifies both the collection method and the analysis method of the parameter being measured. (Field width=2)

MONTH: The month of the year during which the sample was taken. (Field width=2)

NBR-OF-READINGS: The number of readings or samples contained in the master file record. (Field width=2)

PARAMETER-CODE: Identifies the parameter being measured. Refer to APTD-0633 for a full list of currently accepted parameter codes and Table 14, Appendix H for a partial list. (Field width=5)

PROJECT: Identifies the project in association with which the sample was taken. Valid codes are found in Table 5, Appendix H. (Field width=2)

Figure 6.1.2 Valid Data Names for Retrieval Specification (Continued)

*RPTING-SECTION: Identifies, as a group, the following repeating fields:

STATUS-FLAG

DATA-FIELD

(Field width=5)

SITE: Identifies the site at which the samples were taken. (Field width=3)

START-HOUR: The hour at which the first sample was taken. (Field width=2)

STATE: Identifies the state (or other geographic division) in which the sampling site is located. (Field width=2)

*STATUS-FLAG: Indicates the status of the associated reading. Valid codes are:

'A'	Added since submission to SAROAD
'C'	Changed since submission to SAROAD
'S'	Sent to SAROAD

(Field width=1)

TIME-CODE: Indicates the interval at which the samples were taken. Valid codes are found in Table 6, Appendix H. (Field width=1)

UNIT-CODE: Indicates the units in which the parameter was measured. A partial list may be found in Table 16, Appendix H. (Field width=2)

YEAR: The year in which the sample was taken. (Field width=2)

*Repeating name

Figure 6.1.2 Valid Data Names for Retrieval Specification (Continued)

6.1.3 COBOL SPECIFICATIONS PLACED IN LINE

Inline COBOL language specifications are entered immediately following the $$SELECT card. These cards are punched according to COBOL rules for syntax and punctuation. Any user defined paragraph or section name should begin with the prefix, USER-, to avoid conflict with other names in the program. Any valid PROCEDURE DIVISION statements, with the exception of DECLARATIVES, may be entered. Since the Retrieval Language Processor program does not examine the COBOL statements, any errors could result in COBOL diagnostics or unpredictable results. A data name named SUB (PIC 99 COMP SYNC) is provided for use as a subscript for referencing repeating data names.

The following example is used to explain how the subscript is utilized.

```
$$SELECT USER
     USER-P.
            MOVE FALSE TO RECORD-QUALIFIES-SW.
            IF PARAMETER-CODE IS EQUAL TO '42401'
              IF YEAR IS EQUAL TO '71'
                IF DECIMAL-CODE IS EQUAL TO '2'
                  IF TIME-CODE IS EQUAL TO '1'
                    MOVE 1 TO SUB
                    PERFORM USER-CK-RTN THRU USER-CK-END
                         NBR-OF-READINGS TIMES.
     USER-P-END.  EXIT.
     USER-CK.
            IF DATA-FIELD (SUB) > '0050'
              MOVE TRUE TO RECORD-QUALIFIES-SW.
     USER-CK-END.  EXIT.
$$END
```

In this example the master file record is examined to see if the parameter code is sulfur dioxide, the year of record is 1971, the decimal point indicator is 2, and the data stored is hourly data. If all of these conditions are met then each reading in the record is compared to .50 by using the data name SUB and performing the paragraph USER-CK. If the record contains at least one reading greater than .50 then the entire record is written to the answer file.

6.1.4 COBOL STATEMENTS OBTAINED FROM COPY MEMBER

If the user finds that a particular set of retrieval specifications which he has written in Cobol is being used extensively he may wish to store these specifications in a copy member. This action would save having to keep up with the cards and insert them properly in the run deck each time that retrieval is desired. After the copy member has been established only the name of the member need be referenced in the $$SELECT card to obtain the desired retrieval. (see examples C and F of the types of retrieval requests).

The establishment of copy members can be accomplished quickly and easily by personnel in the users data processing section.

6.2 RETRIEVAL REQUESTS

There are six regular types of retrieval requests, each of which can be associated with the list option. The type of request is determined by the contents of the $$SFLECT card. Examples of the retrieval request types follow:

a. Retrieval of standard records using the AQDHS-II language retrieval specification statements following the $$SELECT card

```
$$SELECT                    LIST
AGENCY              = 'D'                       AND
YEAR              N < '72'                      OR
STATUS-FLAG         = 'C'                       OR
(PARAMETER-CODE     = '11101'                   AND
DATA-FIELD          > '30')
$$END
```

This specification will select all records which:

(a) are for years equal to or greater than 1972 and are for the atmospheric research group.

(b) all records with at least one status flag of changed. (Regardless of criteria(a))

(c) all records which contain the parameter code for total suspended particulates which have a data field with a value greater than 30. (Regardless of criteria (a & b))

The above records will be placed in a Standard Answer file and since the list option was used all records selected will be listed on the printer.

b. Retrieval of standard records using the COBOL language retrieval specification statements following the $$SELECT card

```
$$SELECT USER
        MOVE ZERO TO TALLY.
        IF PARAMETER-CODE IS EQUAL TO '42401'
          IF YEAR IS EQUAL TO '71'
            IF TIME-CODE IS EQUAL TO '1'
        MOVE 1 TO SUB
          PERFORM USER-CK THRU USER-CK-END NBR-OF-READINGS TIMES.
            IF TALLY NOT < 10
        MOVE TRUE TO RECORD-QUALIFIES-SW.
    USER-CK.
          IF DATA-FIELD NOT = '9999'
        ADD 1 TO TALLY.
    USER-CK-END.  EXIT.
$$END
```

This specification will select all records which contain at least ten hourly readings for sulfur dioxide for the year 1971.

The records will be placed in a standard answer file and they will not be listed.

c. Retrieval of standard records using the COBOL language retrieval specification statements residing in the copy library under the member name specified

```
$$SELECT USER RPTEST01
$$END
```

This specification will cause the COBOL statements contained in the copy member RPTEST01 (shown below) to be used for the retrieval.

MEMBER NAME RPTEST01

```
    IF YEAR IS GREATER THAN 70                AND
       MONTH IS LESS THAN 4                   AND
       NOT COMPOSITE
      MOVE TRUE TO RECORD-QUALIFIES-SW.
```

This retrieval will select all records which do not contain composite data and are for the months January, February, and March of the years 1971 and later.

A Standard Answer file will be created and the records retrieved will not be listed.

d. Retrieval of sliding average records using the AQDHS-II language retrieval specification statements following the $$SELECT card.

```
$$SELECT       SLIDING
TIME-CODE      N - 'C'
$$END
```

This specification will select all records which do not contain composite data.

The records will be placed in a Sliding Average Answer file and will not be listed.

3. Retrieval of sliding average records using the COBOL language retrieval specification statements following the $$SELECT card.

```
$$SELECT USER  SLIDING LIST
     MOVE ZERO TO TALLY.
     IF PARAMETER-CODE IS EQUAL TO '42401'
      IF YEAR IS EQUAL TO '71'
       IF TIME-CODE IS EQUAL TO '1'
     MOVE 1 TO SUB
      PERFORM USER-CK THRU USER-CK-END NBR-OF-READINGS TIMES.
     MOVE TRUE TO RECORD-QUALIFIES-SW.
  USER-CK.
      IF DATA-FIELD < '9998'
      ADD 1 TO TALLY.
  USER-CK-END.  EXIT.
$$END
```

This specification will select the same records selected by example (b) however, they will be placed in a Sliding Average Answer file and all records retrieved will be listed.

f. Retrieval of sliding average records using the COBOL language retrieval specification statements residing in the copy library under the member name specified.

```
$$SELECT USER RPTEST01 SLIDING LIST
$$END
```

This specification will cause the COBOL statements contained in the copy member RPTEST01 (shown below) to be used for the retrieval.

```
MEMBER NAME  RPTEST01

     IF YEAR IS GREATER THAN 70                  AND
        MONTH IS LESS THAN 4                     AND
        NOT COMPOSITE
      MOVE TRUE TO RECORD-QUALIFIES-SW.
```

This retrieval will select all records which do not contain composite data and are for the months January, February, and March of the years 1971 and later.

A Sliding Average Answer file will be created and all records retrieved will be listed since the list option was specified.

g. Retrieval of modified answer records using the "member name", "list", "user-data", and "user define subroutine" options.

```
$$SELECT     RCOPYMEM     LIST     RLOCDATA     REPROUTN
YEAR            =         YEAR
$$END
```

This retrieval uses a subroutine to search a locally-defined county-code conversion table. The area-site code combination is used as the Table argument. If found, the routine returns a two digit code denoting the county, otherwise it returns '00' as the county code. If the county code is found, the record is selected for retrieval and the county code is moved to the two high order positions in the answer record (action-code and form code positions) for subsequent processing. *It should be noted that while the answer file contains modified records (i.e., the county code is in the first two position); the master file is unchanged.* Note that the answer file can then be sorted on county code and reports can be generated by county. It should be noted that the action-code and form codes are not printed by the list programs and will not appear on any AQDHS-II reports.

```
                                        AQDHS LANGUAGE PROCESSOR DIAGNOSTIC MESSAGES

   PROGRAM NAME:        LXLNGPRC
   REVISION LEVEL:      2-00
   LAST UPDATE#:        DISTRIBUTION #2

   INCORPORATED:        MARCH 25, 1977

   INPUT (CONTROL CARDS)

   $$SELECT       RCOPYMEM           LIST      RLOCDATA REPROUTN

   YEAR                   = YEAR

   $$END

   NUMBER OF CONTROL CARDS READ:               3

   NUMBER OF SKELETON RECORDS READ:          605

   NUMBER OF SOURCE RECORDS WRITTEN:         704
   NUMBER OF ERRORS DETECTED:                  0
```

Example g. Continued

```
01  USER-DATA-STRUCTURE.                                               00000100
    02 COUNTY-TABLE-ARG.
       03 AREA-CODE-ARG PIC 9999.
       03 SITE-CODE-ARG PIC 999.
    02  LOCALLY-DEFINED-IDENTIFIERS.                                   00000200
        03  CONVERSION-ERROR-TEXT          PIC X(24)                   00000300
                                           VALUE 'NO MATCHING COUNTY00000400
                                             ' CODE'.                  00000500
        03  USER-DIAGNOSTIC.                                           00000600
            04  USER-ERROR-KEY             PIC X(31) VALUE SPACES.    00000700
            04  FILLER                     PIC X VALUE SPACES.        00000800
            04  USER-ERROR-TEXT            PIC X(44) VALUE SPACES.    00000900
    02  COUNTY-CONVERSION-TABLE.                                       00001000
        03  FILLER                         PIC 9(4)  VALUE 0001.      00001100
        03  FILLER                         PIC 9(3)  VALUE 001.       00001200
        03  FILLER                         PIC 9(2)  VALUE 02.        00001300
        03  FILLER                         PIC 9(4)  VALUE 0001.      00001400
        03  FILLER                         PIC 9(3)  VALUE 002.       00001500
        03  FILLER                         PIC 9(2)  VALUE 01.        00001600
        03  FILLER                         PIC 9(4)  VALUE 0002.      00001700
        03  FILLER                         PIC 9(3)  VALUE 003.       00001800
        03  FILLER                         PIC 9(2)  VALUE  11.       00001900
        03  FILLER                         PIC 9(4)  VALUE 0003.      00002000
        03  FILLER                         PIC 9(3)  VALUE 006.       00002100
        03  FILLER                         PIC 9(2)  VALUE 24.        00002200
    02  COUNTY-CONVERSION-TABLE-R                                      00002300
          REDEFINES COUNTY-CONVERSION-TABLE                           00002400
                                       OCCURS 4 TIMES                 00002500
                                       ASCENDING KEY IS               00002600
                                       COUNTY-TABLE-KEY               00002700
                                       INDEXED BY COUNTY-INDEX.       00002800
        03  COUNTY-TABLE-KEY                PIC 9(7).                  00002900
        03  COUNTY-ID                       PIC 9(2).                  00003000
    02  COUNTY-CODE.                                                   00003100
        03  COUNTY-CODE-BYTE-1              PIC 9.                     00003200
        03  COUNTY-CODE-BYTE-2              PIC 9.                     00003300
```

Example g. Continued

```
USER-SELECT-CONTROL.
  PERFORM USER-COUNTY-CONVERSION THROUGH
        USER-COUNTY-CONVERSION-END.
  IF COUNTY-CODE IS NOT EQUAL TO ZERO
    IF COUNTY-CODE IS EQUAL TO '02' OR '11' OR '23'
      MOVE TRUE TO RECORD-QUALIFIES-SW
      MOVE COUNTY-CODE-BYTE-1 TO ACTION-CODE
      MOVE COUNTY-CODE-BYTE-2 TO FORM-CODE
    ELSE
      MOVE FALSE TU RECORD-QUALIFIES-SW
  ELSE
    MOVE CONVERSION-ERROR-TEXT TO USER-ERROR-TEXT
    MOVE IDENT-KEY TO USER-ERROR-KEY
    MOVE PROGRAM-PREFIX TO ERROR-PREFIX
    MOVE 101 TO ERROR-IDENT
    MOVE ERROR-FLAG-E TO ERROR-SEVERITY-FLAG
    MOVE USER-DIAGNOSTIC TO ERROR-DIAGNOSTIC
    PERFORM PRINT-ROUTINE THROUGH PRINT-ROUTINE-END
    MOVE FALSE TO RECORD-QUALIFIES-SW.
  IF COUNTY-CODE IS GREATER THAN '23'
    MOVE TRUE TO END-OF-JOB-SW.
```

Example g. Continued

```
USER-COUNTY-CONVERSION.
  MOVE AREA-CODE TO AREA-CODE-ARG.
  MOVE SITE TO SITE-CODE-ARG.
  SEARCH ALL COUNTY-CONVERSION-TABLE-R
            AT END MOVE ZERO TO COUNTY-CODE
            WHEN COUNTY-TABLE-ARG IS EQUAL TO COUNTY-TABLE-KEY
            (COUNTY-INDEX)
               MOVE COUNTY-ID (COUNTY-INDEX) TO COUNTY-CODE.
   USER-COUNTY-CONVERSION-END.
     EXIT.
```

Example g. Continued

```
RET101E 200001004B038700101001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700201001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700301001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700401001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700501001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700601001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700701001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700801001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038700901001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038701001001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038701101001120181091 NO MATCHING COUNTY CODE
RET101E 200001004B038701201001120181091 NO MATCHING COUNTY CODE
RET101E 340001003A06A700101004260399074 NO MATCHING COUNTY CODE
RET101E 340001003A06A730101004260399074 NO MATCHING COUNTY CODE
RET101E 340001004A06A700101004260399074 NO MATCHING COUNTY CODE
RET101E 340001004A06A730101004260399074 NO MATCHING COUNTY CODE
RET101E 340002001D058740801004410115011 NO MATCHING COUNTY CODE
RET101E 340002001D058740801004410183010 NO MATCHING COUNTY CODE
RET101E 340002005D058740801004410115011 NO MATCHING COUNTY CODE
RET101E 340002005D058740801004410183010 NO MATCHING COUNTY CODE
RET101E 340003002G04C710191184350291011 NO MATCHING COUNTY CODE
RET101E 340003002G04C720191184350291011 NO MATCHING COUNTY CODE
RET101E 340003002G04C730191184350291011 NO MATCHING COUNTY CODE
RET101E 340003002G049740901004310111020 NO MATCHING COUNTY CODE
RET101E 340003002G049740901004350192073 NO MATCHING COUNTY CODE
RET101E 340003004G049740901004310111020 NO MATCHING COUNTY CODE
RET101E 340003004G049740901004350192073 NO MATCHING COUNTY CODE
```

Example g. Continued

6.3 PRECAUTIONS AND CONSTRAINTS

The retrieval program package makes a number of edit checks to ascertain that retrieval controls and specifications are acceptable. These checks are not exhaustive because of unavoidable limitations so that there are some precautions that must be observed to avoid unpredictable results.

The program performs checks and if the check fails, the program issues a diagnostic message and terminates all further processing. The checks are:

- There must be one and only one $$SELECT card
- The $$SELECT card must precede all other retrieval specification cards
- Key words on the $$SELECT card must appear exactly as specified herein
- Retrieval specification statements must use names which exist in the list of Valid Data Names for Retreival Specification
- The $$END card must be the last card in the retrieval specification
- Entries on the control cards must be in the correct card columns with the correct spelling as specified herein
- Retrieval specification statements in AQDHS-II language must conform to the syntax specified herein.

Although all specifications and operating instructions should be followed precisely, additional care is desirable for the following:

- When literal fields are used in the retrieval specification statements, the literal must be enclosed in quotes and the number of characters in the literal must be the same as the number of characters in the master record field to which the literal refers. The literal must be right justified using leading zeroes for numeric values as required to complete the field width (e.g., a data literal must be '0050' not '50').
- The first time a repeating name is used in the AQDHS-II language retrieval specification, it must not be enclosed by any parenthesis. This rule may be stated alternatively as: no parenthesis may enclose the first occurrence of any repeating name. To avoid difficulty, when it is desired to use a repeating name in a complex retrieval statement requiring the use of parentheses, the following statement should immediately precede the first occurrence of the repeating name enclosed by parentheses:

```
    Repeating-name = Repeating-name                AND
```

Thus a valid statement might be:

```
$$SELECT
AREA-CODE                 = '0032'           AND
SITE                      = '201'            AND
PARAMETER-CODE            = '11101'          AND
```

```
*DATA-FIELD                    = DATA-FIELD         AND
(DATA-FIELD                    = '0050'             AND
TIME-CODE                      = '3')               OR
(DATA-FIELD                    = '0075'             AND
TIME-CODE                      = '8')
$$SEND
```

*If the line marked with a asterisk were omitted, the complete statement would be invalid. Do not put the asterisk in your card(s) it is for illustrative purposes only.

- Caution must be taken in the preparation of retrieval specification statements to avoid conflicts in the comparison of null readings which are coded as 9999 and treated by the retrieval program as valid readings. For example, to retrieve readings greater than some threshold value, say 50, the retrieval specification should also specify that the reading must be less than 9999. The resultant statement might be

  ```
  DATA-FIELD                  = DATA-FIELD         AND
  (DATA-FIELD                 > '0050'             AND
  DATA-FIELD                  < '9999')
  ```

  Furthermore it is recommended that the use of repeating names should be as close to the end of a retrieval statement as possible. Thus note in the previous example that use of non-repeating names occur before the parts of the statement involving DATA-FIELD.

Stated another way, the most efficient retrieval will be obtained if (whenever the logic will permit) all non-repeating data names are grouped at the beginning of the conditional statement. Thus, in the first example above only those logical expressions which reference TIME-CODE appear after the first reference to the repeating data name, DATA-FIELD. The non-repeating fields such as site are placed first.

6.4 RETRIEVAL INPUTS

The Retrieval programs have three inputs consisting of the Retrieval Control Cards, the Retrieval specification cards or COBOL specifications and the current master file.

6.5 RETRIEVAL OUTPUTS

The Retrieval Program produces three types of output; diagnostic messages, the answer set containing the selected data, and optionally a list of the records in the master file which qualified. Two sets of diagnostic messages are produced; one from the Language Processor and one from the generated Retrieval program. The Language Processor diagnostics (See Appendix A) display any error encountered in processing the Retrieval Language Specification Statements. If the COBOL Language is used, error messages may be generated by the COBOL compiler. The Retrieval program may also generate diagnostic messages. In both cases the diagnostic messages indicate any errors discovered by the program. The detectable errors are discussed in Section 6.3, Precautions and Constraints.

It should be noted that due to the sort sequence of the master file, records selected for sliding average reports must have the same decimal code.

7.0 OUTPUT PROGRAMS

AQDHS-II provides two output programs for producing various listings of data contained in the master file. These are the Detail List program and the Data Analysis Statistical List program set. In addition the Sliding Average Program computes averages for display by the Detail List Program.

7.1 DETAIL LIST PROGRAM

The Detail List program formats and displays data selected from the master file or from the sliding average values file. There are several formats used depending upon the type of data (as specified by the Time-Code) to be displayed. Less than daily data is displayed on a site basis in a matrix whose row labels are days and whose column headings are hours. Daily data are displayed in a matrix with row labels of days and column headings of months. Weekly data are displayed in a matrix with row labels of week-of-the-month and column headings of months. Monthly and quarterly data are displayed on a site by site basis under column headings of month and quarter respectively.

The program operates in either of two modes: a standard and sliding average mode. The mode is determined by the contents of the input file. The standard mode has two options: a display option and a summary option. The display option allows the user to specify whether the program should print data values meeting a user supplied expression or to print all variable data values which are < 9998. The summary option allows the user to specify the type of summary columns and rows to be printed. The 'MEAN' option specifies that the number of readings, the mean reading and the maximum reading will be printed for each row and column. The 'SUM' option specifies that the number of readings and the sum of the readings for each row will be printed. No column footings are available in the

'SUM' option. The sliding average mode has only one option; the display option.

The mean values computed by this program may differ from those computed from the same raw data by the Data Analysis program because the Data Analysis program will adjust some values according to the minimum detectable value whereas the Detail List program uses the raw data values.

The user is cautioned to use the proper entries on the option control card for the type of input data file to be processed. Otherwise the program will reject the options selected and terminate without processing the data, immediately after it outputs the appropriate error message(s).

7.1.1 EDIT CHECKS

The Detail List performs a number of edit functions to ascertain that there is consistency between the input data and the options selected by the user. In addition the program checks the applicability of the various AQDHS-II tables for the parameter codes, site codes and parameter standards.

In performing the various edit functions the program detects the following errors:

- One of the Summary Options (MEAN or SUM) was entered on the option control card while attempting to print sliding average results.
- One or more of the option statements contains a spelling error, a missing element or the elements were in the wrong order.
- The relational operator (>, =, or <) was missing in the display option statement.
- An unrecognizable character (neither N or blank) occurred between the keyword DISPLAY and the relational operator in the display option statement.
- The entry for the specified value in the display option statement contains one or more non-numeric characters or exceeds the range .0000-9997. (the values 9998 and 9999 have been reserved for special uses by the system. 9998 is used to condition printing

of asteriks in the Detail List Program and 9999 is used to represent null values.)

- Both keywords (SUM and MEAN) occurred on the option control card.
- No option control card was provided for a standard answer file listing.
- The threshold value in the display option statement was used inconsistently in relation to the relational operator.
- The input file name designated a non-existant file.
- The two Parameter Key and Parameter Description Tables name in the runstream do not match in size or content.

Whenever any of the above error conditions are detected, the program prints an error message and terminates without processing the input file.

In addition to the above errors, the program detects a conflict between the size of the Parameter, Parameter Standards and Site Code Tables and the maximum sizes allowed in the program. When this condition is encountered, the program prints a warning message but continues to process the input file. During processing, only that portion of the table or tables that can be accomodated by the maximum program table size will be used for processing. This condition may result in incomplete heading identification in the output results.

7.1.2 INPUTS

The Detail List program requires access to a data file and may have an option control card. The data file may be the master file, a standard answer file or a sliding average answer file.

The option control card contains keyword statements for either option (Summary and Display). These statements may appear on the option control card in any order, but must be preceded or followed by at least one blank. (Note that a keyword that starts in column 1 is considered to be preceded by a blank). Statements may appear anywhere on the card except columns 73 to 80. All desired options must be contained on one card.

The keywords for the Summary option are MEAN and SUM with the following meanings:

MEAN:	Print the number of readings, the maximum reading and the mean for each column and row.
SUM:	Print the number of readings and the sum of the readings for each row. (Column footings are not printed with this option).

The Summary option is valid only for processing standard answer files and one of the options must be stated or the program will assume the mean option. The presence of either of the Summary option keywords will cause the program to terminate before processing a sliding average answer file.

The Display option statement consists of a keyword, an optional negation flag, a relational operator and a threshold value in that order. Each element of the display option statement must be preceded and followed by at least one blank. The definition of the elements of the statement are:

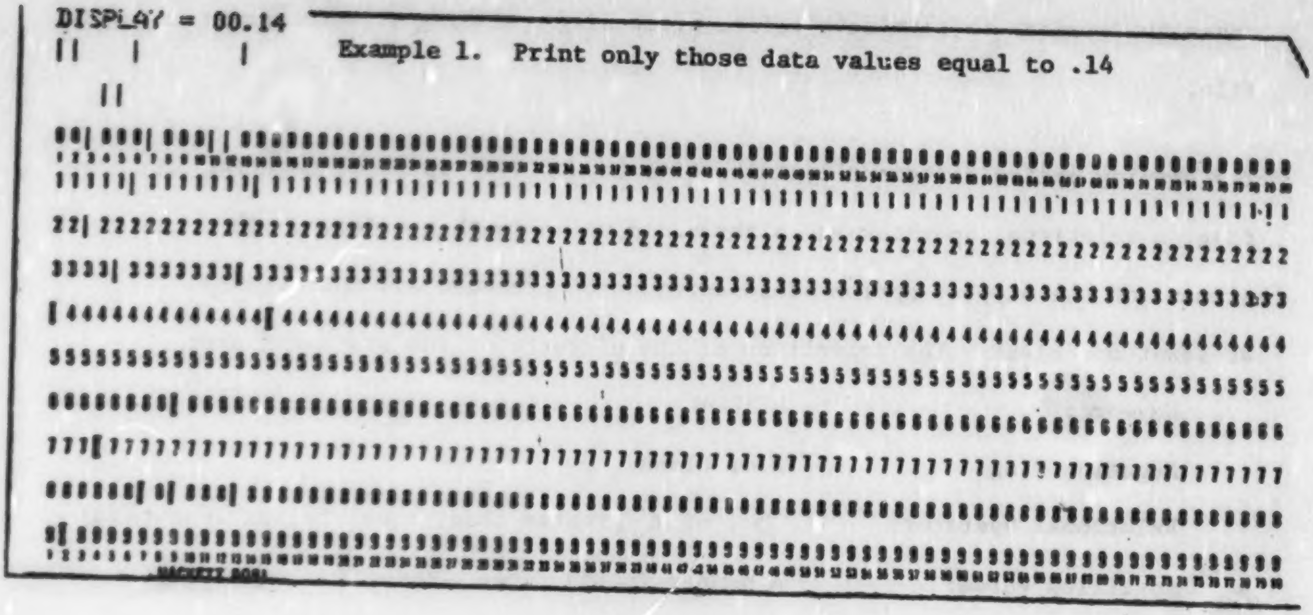
Keyword: DISPLAY

Negation Flag: N or Blank

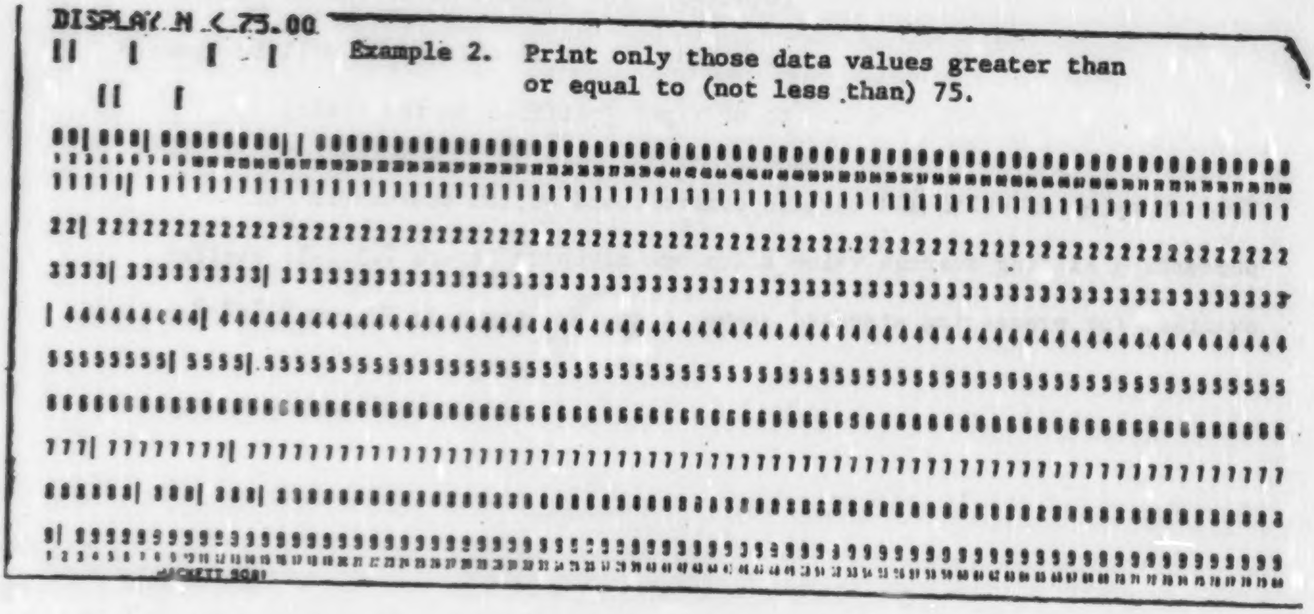
Relational Operator: >, =, <(greater than, equal to, or less than)

Specified Value: A number in the range .0000-9997. (leading zeroes in front of the decimal are not required. The decimal point should always be coded. If it is omitted it will be assumed to be right justified in the field).

Some examples of valid and invalid control card option statements for processing sliding average value files are given in Figure 7.1.2-1; similar examples for processing standard answer files are given in Figure 7.1.2-2.

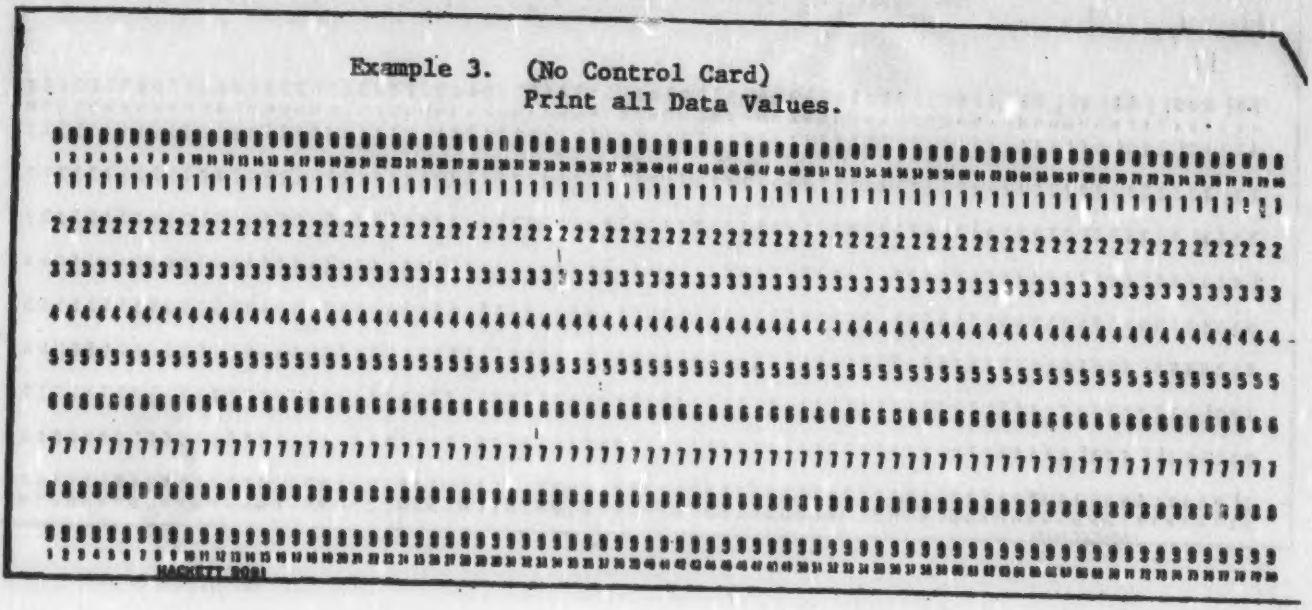


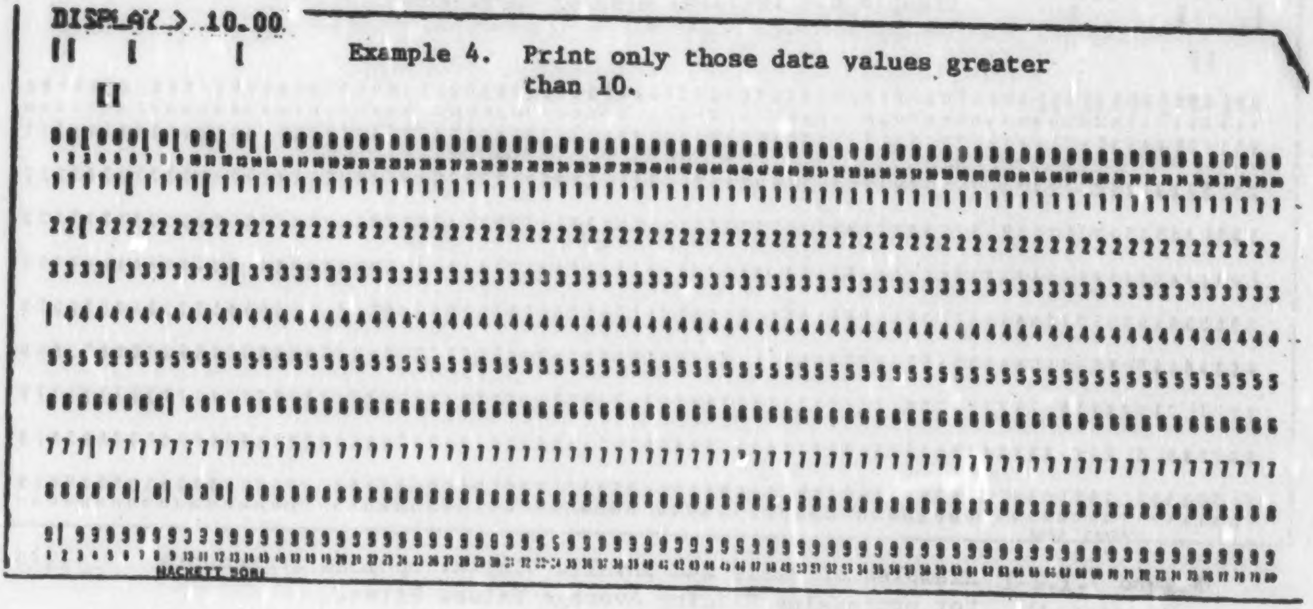
Example 1. Print only those data values equal to .14



Example 2. Print only those data values greater than or equal to (not less than) 75.

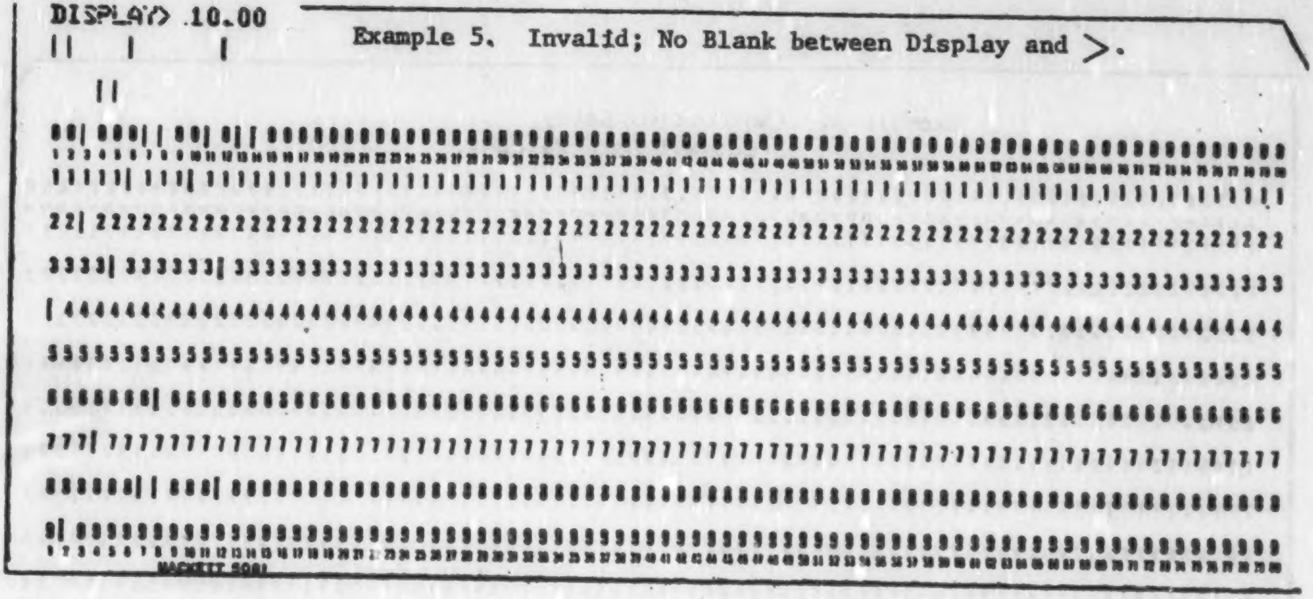
Figure 7.1.2-1 Examples of Valid and Invalid Display Options Statements for processing Sliding Average Values Files.


Example 3. (No Control Card)
Print all Data Values.

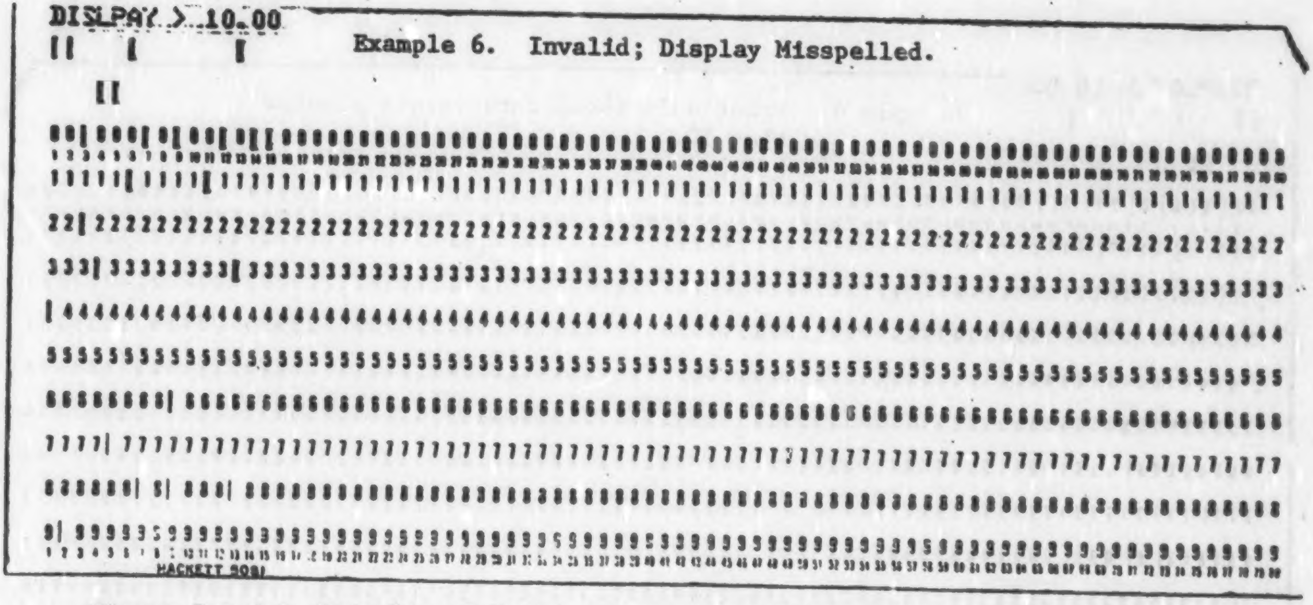

DISPLAY > 10.00

Example 4. Print only those data values greater than 10.

Figure 7.1.2-1 (Continued) Examples of Valid and Invalid Display Options Statements for processing Sliding Average Values Files.

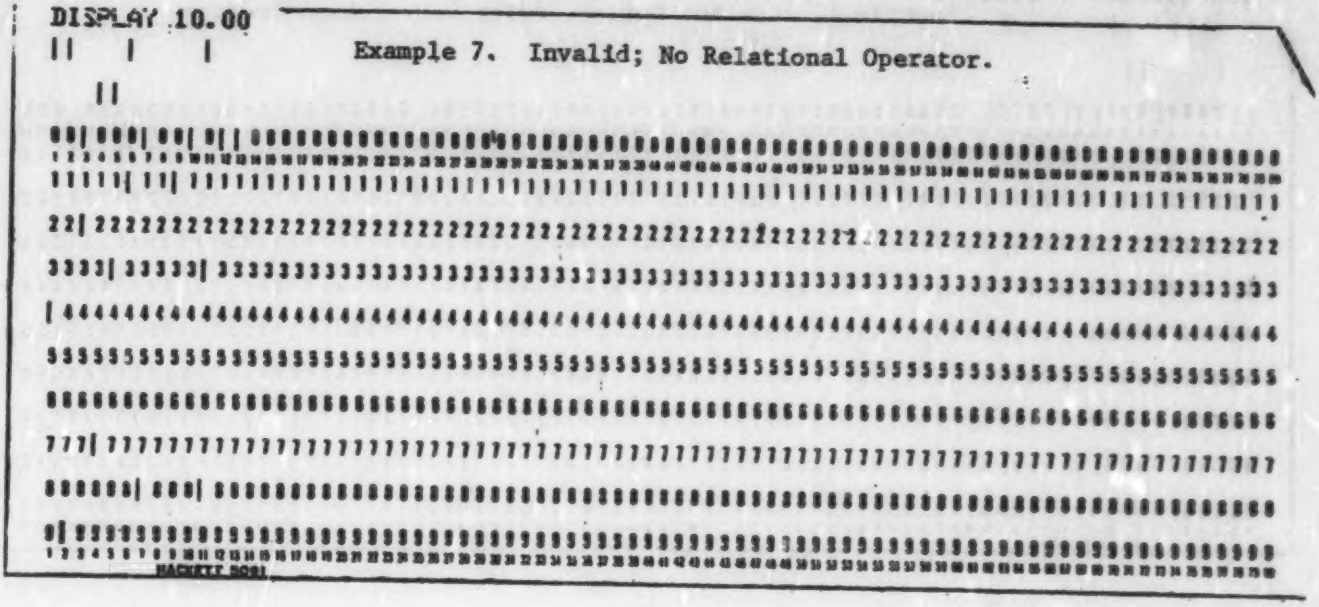


Example 5. Invalid; No Blank between Display and >.



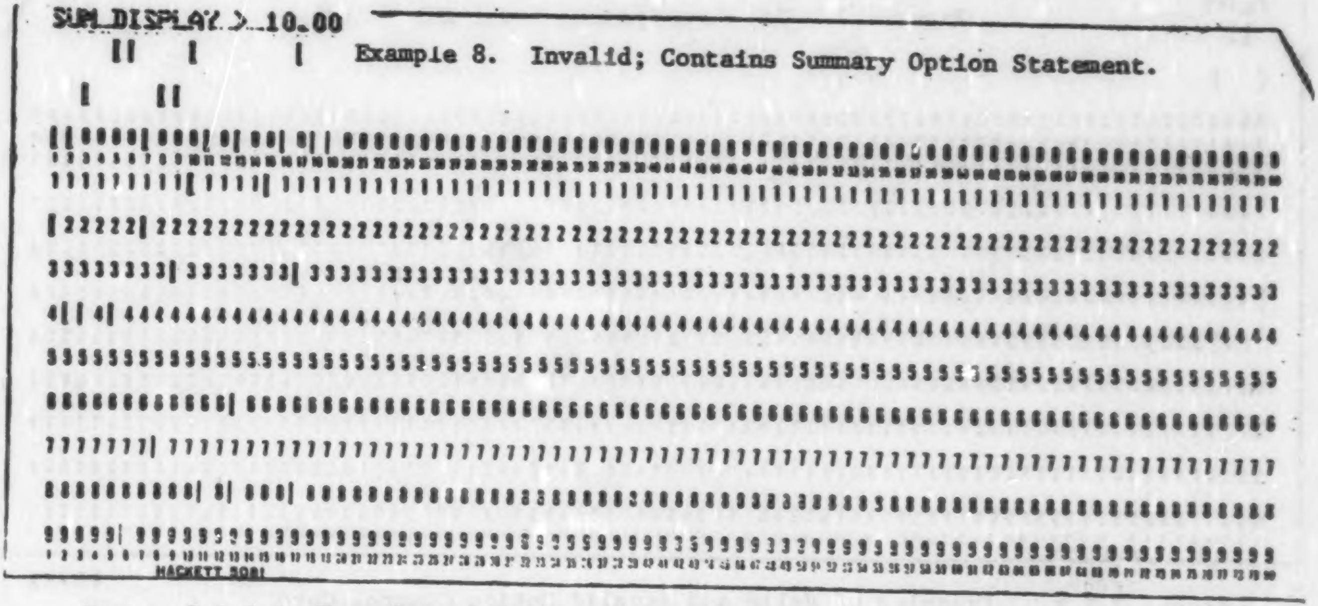
Example 6. Invalid; Display Misspelled.

Figure 7.1.2-1 (Continued) Examples of Valid and Invalid Display Options Statements for processing Sliding Average Values Files.



DISPLAY 10.00

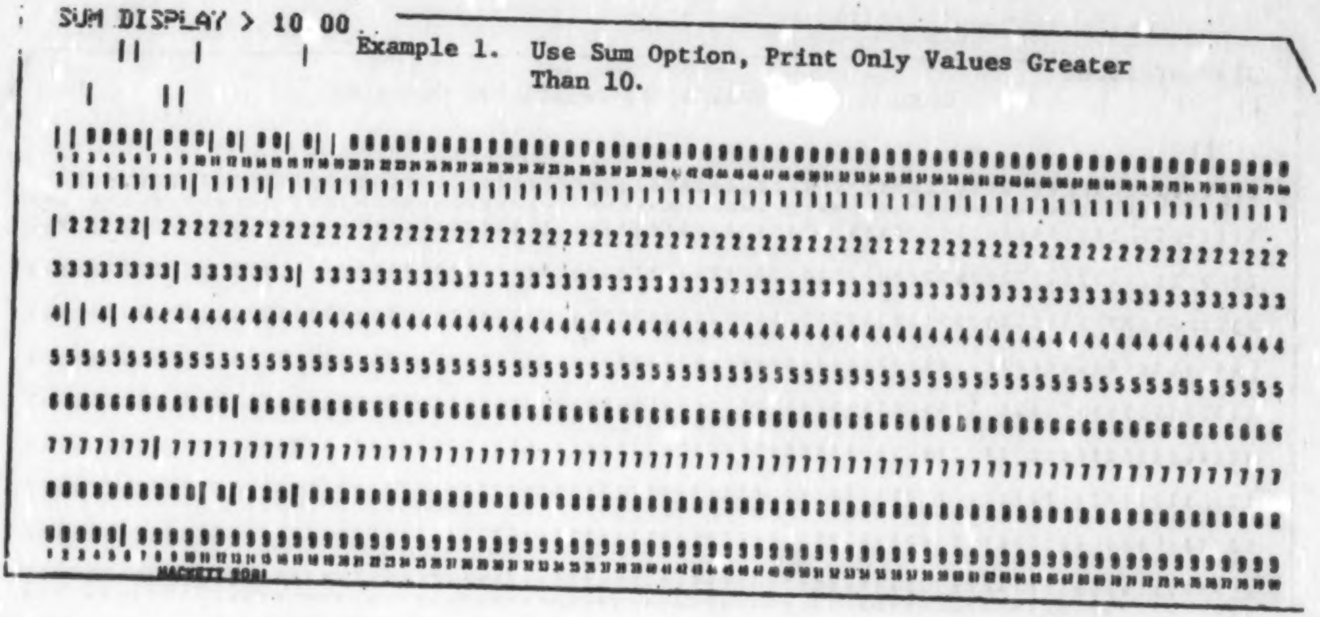
Example 7. Invalid; No Relational Operator.



SUM DISPLAY > 10.00

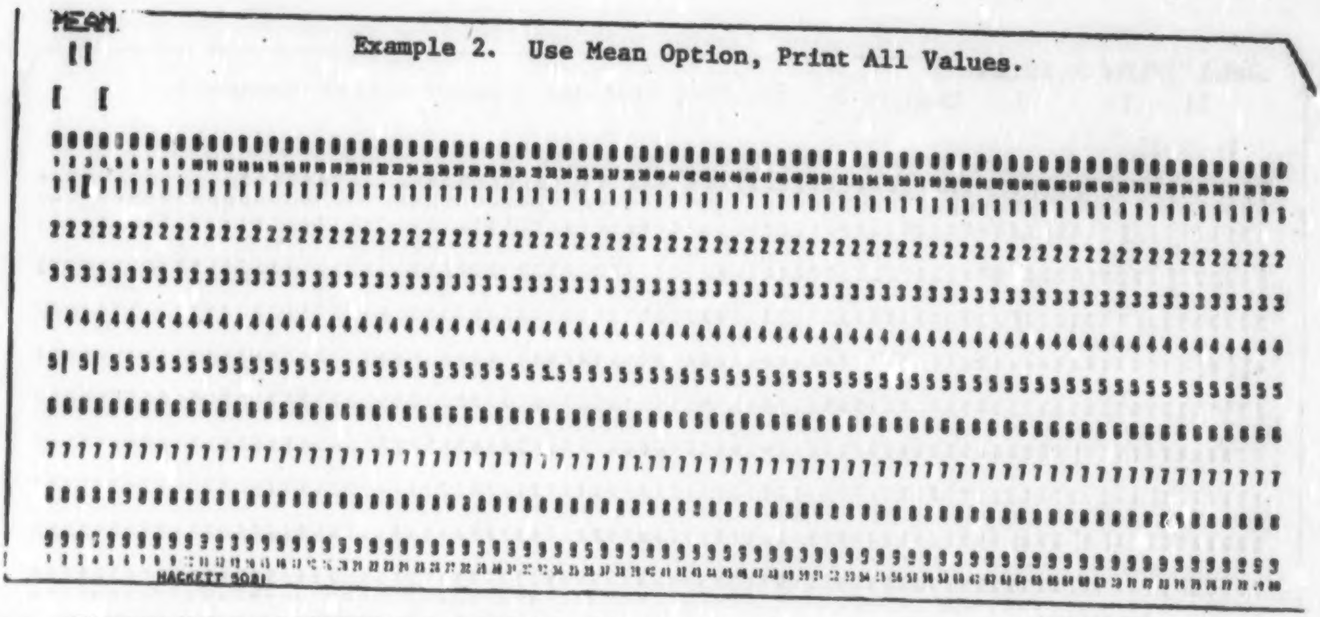
Example 8. Invalid; Contains Summary Option Statement.

Figure 7.1.2-1 (Continued) Examples of Valid and Invalid Display Options Statements for processing Sliding Average Values Files.



SUM DISPLAY > 10 00

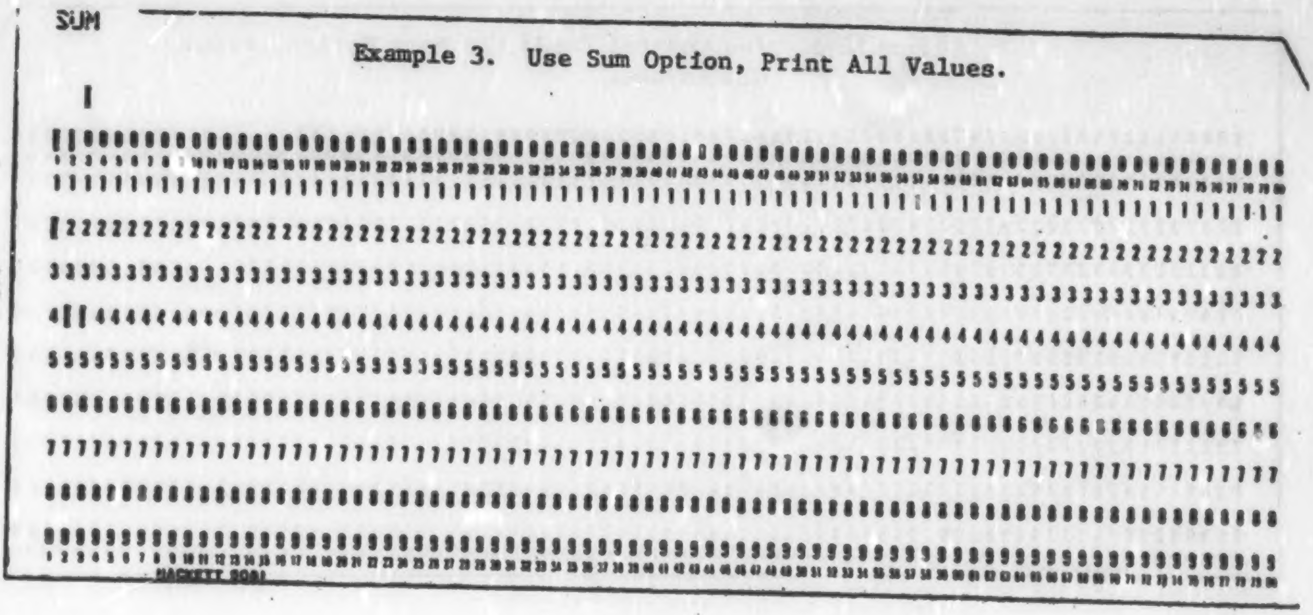
Example 1. Use Sum Option, Print Only Values Greater Than 10.



MEAN

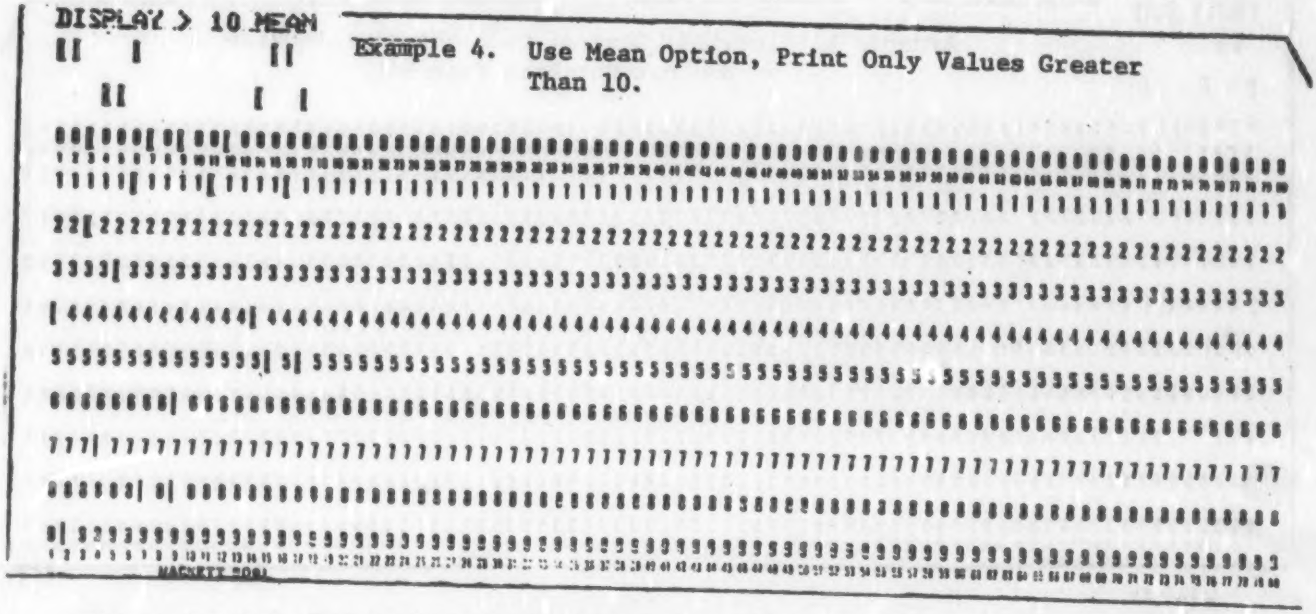
Example 2. Use Mean Option, Print All Values.

Figure 7.1.2-2 Examples of Valid and Invalid Option Control Card Statements for Processing Standard Answer Files.



SUM

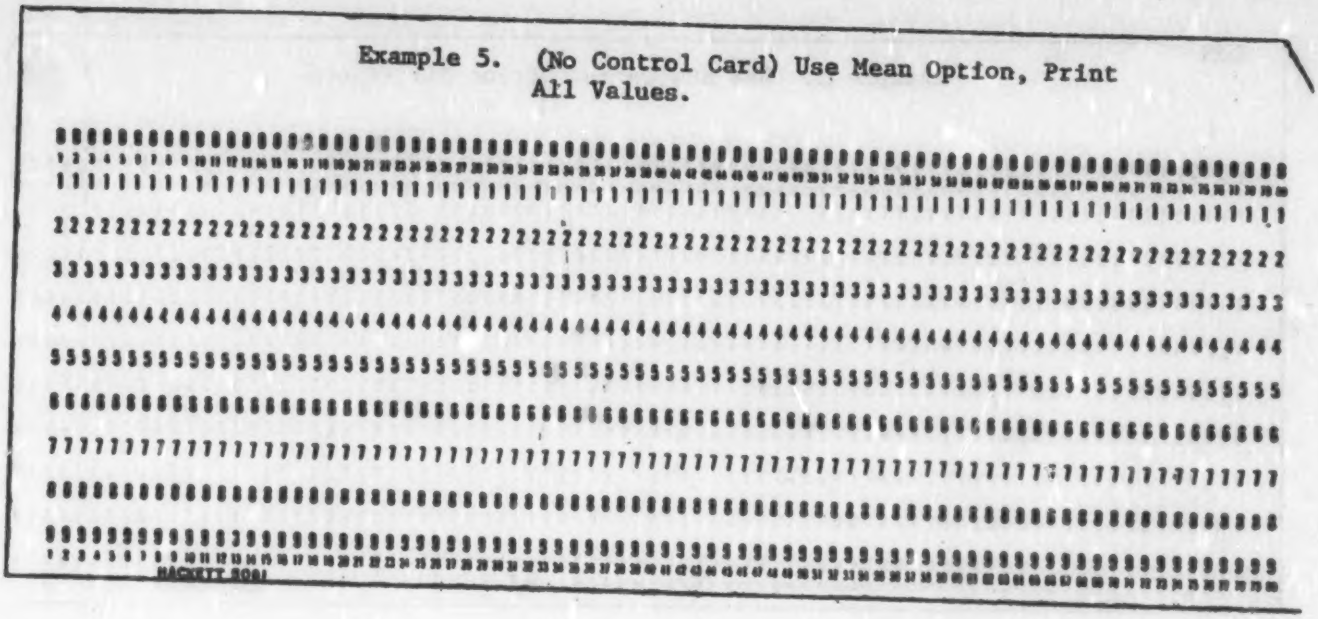
Example 3. Use Sum Option, Print All Values.



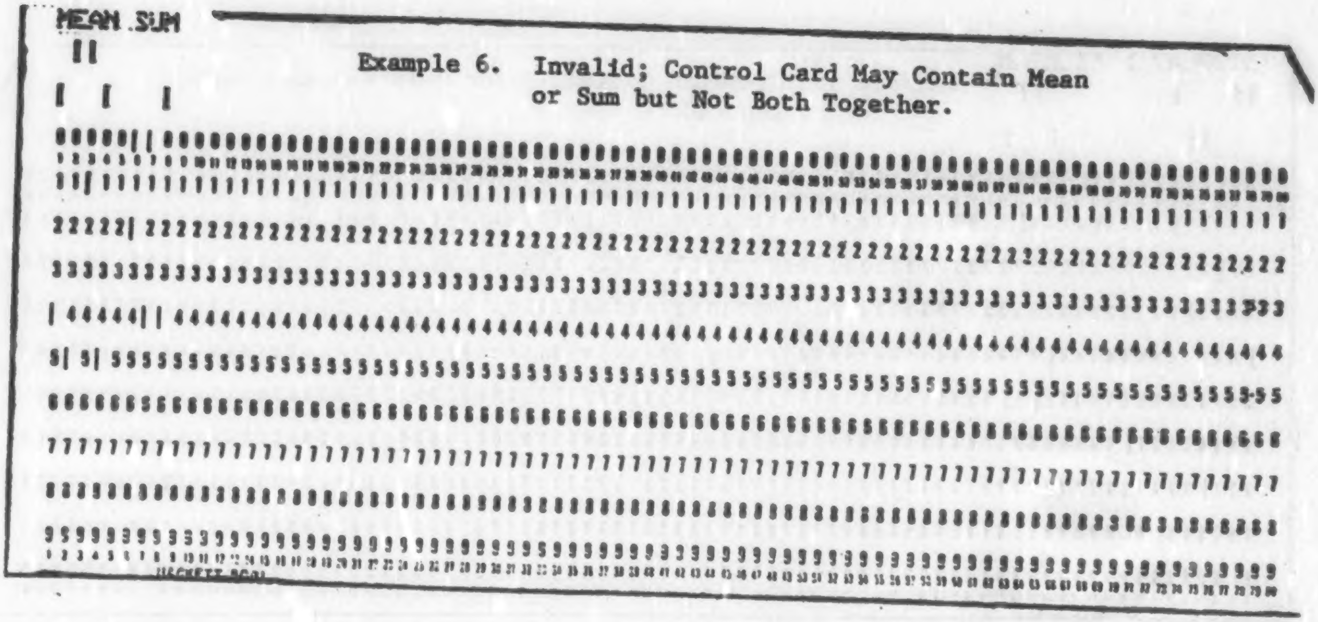
DISPLAY > 10 MEAN

Example 4. Use Mean Option, Print Only Values Greater Than 10.

Figure 7.1.2-2 (Continued) Examples of Valid and Invalid Option Control Card Statements for Processing Standard Answer Files.



Example 5. (No Control Card) Use Mean Option, Print All Values.



Example 6. Invalid; Control Card May Contain Mean or Sum but Not Both Together.

Figure 7.1.2-2 Examples of Valid and Invalid Option Control Card
(Continued) Statements for Processing Standard Answer Files.

7.1.3 OUTPUTS

The Detail List program uses 11 different formats to display non-composited data and 5 different formats to display composited data. There is one format corresponding to each Time-Code (or sampling interval) applicable to non-composited data. There are five formats for composited data corresponding to the five permissible composite types. The output format is automatically selected by the program based upon attributes of the data processed. As many formats will be used as is necessary to display data in the input file. Thus it is possible that the program will use all 16 formats or only one depending upon the number of different data types in the input file.

Any of the 11 non-composite data formats may be used to display sliding averages with the following differences. The title of the report is changed to specify a sliding average report, the row and column footings are omitted, and two messages are printed at the bottom of the page explaining data which was not printed and the reason.

```
                                   AIR QUALITY DATA REPORT
                                                                                        PAGE    1
AGENCY: EPA - ABATEMENT ACTIVITY          STATE: FLORIDA                PROJECT: SOURCE-ORIENTED AMBIENT SURV.
PARAMETER: SULFUR DIOXIDE                     UNITS: PARTS PER MILLION (VOL/VOL)     SAROAD KEY: 100001001E02
COLLECTION METHOD: INSTRUMENTAL               ANALYSIS METHOD: WEST-GAEKE COLORIMETRIC          MONTH: JUNE
SAMPLING INTERVAL: 01 HOURS      SITE: STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...      YEAR: 1971
KEY-1: 100001001E02171  KEY-2: 060100  KEY-3: 4240111072  AREA: 0001  SITE: 001  UNITS CODE: 07 DECIMAL CODE: 2

TYPE                  PRIMARY STANDARD(S)
                                                                        SECONDARY STANDARD(S)
FEDERAL       365 UG/M3 (25 C) .14 PPM  24 HR. MAX, 1 PER YR.       260 UG/M3 (25 C) .1  PPM  24 HR. MAX, 1 PER YR.

                                                HOUR
DAY    00     01     02     03     04     05     06     07     08     09     10     11

01    0.01   0.01   0.01   0.01   0.02   0.02   0.01   0.02   0.03   0.03   0.03   0.03
02    0.02   0.03   0.06   0.07   0.10   0.11   0.12   0.13   0.12   0.11   0.09   0.08
03    0.07   0.02   0.01   0.01   0.01   0.01   0.01   0.01   0.03   0.03   0.06   0.03
04    0.18   0.20   0.22   0.22   0.22   0.24   0.18   0.18   0.10   0.02   0.01   0.01
05    0.03   0.04   0.04   0.04   0.04   0.05   0.06   0.06   0.06   0.06   0.04   0.04
06    0.80   1.00   1.01   1.02   1.02   1.10   1.13   1.10   1.10   1.21   1.10   1.09
07                                                         0.90   0.80   0.70   0.60
08    0.05   0.05   0.04   0.03   0.02   0.01   0.01   0.01   0.01   0.01   0.01   0.01
09    0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01
10    0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01
11    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
12    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
13    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
14    0.03   0.03   0.03   0.03   0.03   0.02   0.02   0.02   0.02   0.02   0.02   0.02
15    0.03   0.03   0.03   0.03   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
16    0.03   0.03   0.03   0.03   0.03   0.02   0.02   0.02   0.02   0.02   0.02   0.02
17    0.04   0.06   0.02   0.01   0.01   0.00   0.00   0.00   0.00   0.00   0.00   0.00
18    0.06   0.06   0.06   0.06   0.06   0.03   0.01   0.04   0.06   0.08   0.07   0.07
19    0.02   0.03   0.03   0.06   0.10   0.11   0.11   0.12   0.13   0.16   0.16   0.16
20    0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.02   0.02
21    0.03   0.03   0.03   0.03   0.03   0.06   0.18   0.20   0.34   0.44   0.54   0.60
22    0.80   0.80   0.90   0.90   0.99   0.99   0.99   1.00
23    0.40   0.30   0.20   0.10   0.09   0.08   0.07   0.06   0.06   0.06   0.06   0.06
24    0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01
25    0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.01
26    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
27    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
28    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
29    0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02   0.02
30    0.03   0.03   0.03   0.03   0.03   0.02   0.02   0.02   0.02   0.02   0.02   0.02

NO      29     29     29     29     29     29     29     29     29     29     29     29

MEAN  0.09   0.10   0.10   0.09   0.10   0.10   0.10   0.11   0.11   0.11   0.10   0.10

MAX   0.80   1.00   1.01   1.02   1.02   1.10   1.13   1.10   1.10   1.21   1.10   1.09
```

Figure 7.1.3-1 Example of Standard Answer Report - One Hour Interval (Mean Option)

```
                                       AIR QUALITY DATA REPORT                                         PAGE    2

AGENCY:  EPA - ABATEMENT ACTIVITY              STATE:  FLORIDA                    PROJECT:  SOURCE-ORIENTED AMBIENT SURV.

PARAMETER:  SULFUR DIOXIDE                          UNITS:  PARTS PER MILLION (VOL/VOL)         SAROAD KEY:   10000100IE02

COLLECTION METHOD:  INSTRUMENTAL                    ANALYSIS METHOD:  WEST-GAEKE COLORIMETRIC            MONTH:  JUNE

SAMPLING INTERVAL:  01 HOURS        SITE:  STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...          YEAR:  1971

KEY-1:  10000100IE02171  KEY-2:  060100  KEY-3:  4240111072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                      PRIMARY STANDARD(S)                                    SECONDARY STANDARD(S)

FEDERAL          365 UG/M3 (25 C) .14 PPM  24 HR, MAX, 1 PER YR.          260 UG/M3 (25 C) .1  PPM  24 HR, MAX, 1 PER YR.

                                                   HOUR

DAY    12      13      14      15      16      17      18      19      20      21      22      23     NO.   MEAN    MAX*

01    0.04    0.06    0.02    0.01    0.01    0.00    0.00    0.00    0.00    0.00    0.00    0.00    24    0.01    0.06
02    0.06    0.06    0.06    0.06    0.06    0.03    0.01    0.04    0.06    0.08    0.07    0.07    24    0.07    0.13
03    0.02    0.03    0.03    0.06    0.10    0.11    0.11    0.12    0.13    0.16    0.16    0.16    24    0.06    0.16
04    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.02    0.02    24    0.08    0.24
05    0.03    0.03    0.03    0.03    0.03    0.06    0.18    0.20    0.34    0.44    0.54    0.60    24    0.12    0.60
06    0.80    0.80    0.90    0.90    0.99    0.99    0.99    1.00    1.00    1.00    1.21    1.22    24    1.02    1.22
07    0.40    0.30    0.20    0.10    0.09    0.08    0.07    0.06    0.06    0.06    0.06    0.06    16    0.28    0.90
08    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24    0.01    0.05
09    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24    0.01    0.01
10    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.01    0.02
11    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
12    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
13    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
14    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.03
15    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.03
16    0.01    0.01    0.01    0.01    0.02    0.02    0.01    0.02    0.03    0.03    0.03    0.03    24    0.02    0.03
17    0.02    0.03    0.06    0.07    0.10    0.11    0.12    0.13    0.12    0.11    0.09    0.08    24    0.04    0.13
18    0.07    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.03    0.03    0.06    0.03    24    0.04    0.08
19    0.18    0.20    0.22    0.22    0.22    0.24    0.18    0.18    0.10    0.02    0.01    0.01    24    0.12    0.24
20    0.03    0.04    0.04    0.04    0.04    0.05    0.06    0.06    0.06    0.06    0.04    0.04    24    0.02    0.06
21    0.80    1.00    1.01    1.02    1.02    1.10    1.13    1.10    1.10    1.21    1.10    1.09    24    0.63    1.21
22                                    1.76    1.54    1.21    1.00    0.90    0.80    0.70    0.60    16    0.99    1.76
23    0.05    0.05    0.04    0.03    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24    0.07    0.40
24    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24    0.01    0.01
25    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24    0.01    0.01
26    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
27    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
28    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.02
29    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.03
30    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24    0.02    0.03

NO      29      29      29      29      30      30      30      30      30      30      30      30   704

MEAN  0.09    0.10    0.10    0.09    0.15    0.15    0.14    0.14    0.14    0.14    0.14    0.14          0.11

MAX   0.80    1.00    1.01    1.02    1.76    1.54    1.21    1.10    1.10    1.21    1.21    1.22                  1.76
```

Figure 7.1.3-1 Example of Standard Answer Report - One Hour Interval (Mean Option) (Continued).

```
                                   AIR QUALITY DATA REPORT                                                        PAGE    10

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA                   PROJECT:  EPISODE MONITORING
PARAMETER:  SOILING INDEX (COH/1000LF)                 UNITS:  COHS/1000 LINEAR FEET                  SAROAD KEY:   340001001A06
COLLECTION METHOD:  TAPE SAMPLER                      ANALYSIS METHOD:  TRANSMITTANCE                         MONTH:  FEBRUARY
SAMPLING INTERVAL:  02 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...            YEAR:  1974
KEY-1:  340001001A06274  KEY-2:  020101  KEY-3:  1120181091  AREA:  0001  SITE:  001  UNITS CODE:  09 DECIMAL CODE:  1

                                              HOUR
DAY      01       03       05       07       09       11       13       15       17       19       21       23     NO.     MEAN    MAX
 01      0.1      0.1      0.2      0.3      0.5      0.8      0.3      2.1                                          8      0.5     2.1
 02                                                                                                                0
 03                                                                                                                0
 04      0.2      0.2      0.4      0.6      1.0      1.6      2.6      4.2                                          8      1.3     4.2
 05                                                                                                                0
 06                                                                                                                0
 07                                                                                                                0
 08      0.5      0.5      1.0      1.5      2.5      4.0      1.5      0.5                                          8      1.5     4.0
 09                                                                                                                0
 10                                                                                                                0
 11                                                                                                                0
 12      0.8      0.8      1.6      2.4      4.0      1.4      0.4      1.8                                          8      1.6     4.0
 13                                                                                                                0
 14                                                                                                                0
 15                                                                                                                0
 16                                                                                                                0
 17                                                                                                                0
 18      2.1      2.1      4.2      1.3      0.5      1.8      2.3      4.1                                          8      2.3     4.2
 19                                                                                                                0
 20                                                                                                                0
 21                                                                                                                0
 22                                                                                                                0
 23                                                                                                                0
 24                                                                                                                0
 25                                                                                                                0
 26                                                                                                                0
 27                                                                                                                0
 28      3.7      3.7      2.8      1.7      4.5      1.2      0.7      1.9                                          8      2.5     4.5

NO        6        6        6        6        6        6        6        6        0        0        0        0     48
MEAN     1.2      1.2      1.7      1.3      2.1      1.8      1.3      2.4                                                 1.6
MAX      3.7      3.7      4.2      2.4      4.5      4.0      2.6      4.2                                                         4.5
```

Figure 7.1.3-1 Example of Standard Answer Report - 2 Hour Interval (Mean Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                         PAGE    11
AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA         PROJECT:  EPISODE MONITORING
PARAMETER:  TOTAL SETTLED PARTICULATE                 UNITS:  TONS/SQUARE MILE-MONTH           SAROAD KEY:   340001001A06
COLLECTION METHOD:  BUCKET; JAR                      ANALYSIS METHOD:  GRAVIMETRIC (APCA)            MONTH:  MARCH
SAMPLING INTERVAL:  03 HOURS      SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...       YEAR:  1974
KEY-1:  340001001A06374  KEY-2:  030102  KEY-3:  2110171902  AREA:  0001  SITE:  001  UNITS CODE:  90 DECIMAL CODE:  2

                          HOUR
DAY    02      05      08      11      14      17      20      23     NO.   MEAN    MAX
01    0.01    0.01    0.02    0.03    0.05    0.08    0.03    0.21     8    0.05    0.21
02                                                                     0
03    0.01    0.01    0.02    0.03    0.05    0.08    0.03    0.21     8    0.05    0.21
04                                                                     0
05                                                                     0
06    0.02    0.02    0.04    0.06    0.10    0.16    0.26    0.42     8    0.13    0.42
07                                                                     0
08                                                                     0
09                                                                     0
10    0.03    0.03    0.06    0.09    0.15    0.24    0.39    0.13     8    0.14    0.39
11                                                                     0
12    0.05    0.05    0.10    0.15    0.25    0.40    0.15    0.05     8    0.15    0.40
13    0.08    0.08    0.16    0.24    0.40    0.14    0.04    0.18     8    0.16    0.40
14    0.13    0.13    0.26    0.39    0.15    0.04    0.19    0.23     8    0.19    0.39
15    0.21    0.21    0.42    0.13    0.05    0.18    0.23    0.41     8    0.23    0.42
16                                                                     0
17                                                                     0
18    0.33    0.33    0.18    0.02    0.20    0.22    0.42    0.14     8    0.23    0.42
19                                                                     0
20                                                                     0
21                                                                     0
22    0.04    0.04    0.10    0.15    0.25    0.40    0.15    0.05     8    0.14    0.40
23    0.37    0.37    0.28    0.17    0.45    0.12    0.07    0.19     8    0.25    0.45
24                                                                     0
25                                                                     0
26    0.41    0.41    0.38    0.32    0.20    0.02    0.22    0.24     8    0.27    0.41

NO      12      12      12      12      12      12      12      12    96

MEAN  0.14    0.14    0.16    0.14    0.19    0.17    0.18    0.20          0.16

MAX   0.41    0.41    0.42    0.39    0.45    0.40    0.42    0.42                  0.45
```

Figure 7.1.3-1 Example of Standard Answer Report - 3 Hour Interval (Mean Option) (Continued)

```
                                            AIR QUALITY DATA REPORT                                                   PAGE   12

AGENCY: EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA                PROJECT: EPISODE MONITORING
PARAMETER: CARBON MONOXIDE                        UNITS: M-GMS/M3 (25DEG C,1013 M-BARS)     SARDAD KEY:  340001001A06
COLLECTION METHOD: INSTRUMENTAL                   ANALYSIS METHOD: NONDISPERSIVE INFRA-RED          MONTH: APRIL
SAMPLING INTERVAL: 04 HOURS      SITE: STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR: 1974
KEY-1: 340001001A06474  KEY-2: 040103  KEY-3: 4210111053  AREA: 0001  SITE: 001  UNITS CODE: 05 DECIMAL CODE: 3

 TYPE                       PRIMARY STANDARD(S)                                   SECONDARY STANDARD(S)
FEDERAL     10,000 U-GMS/M3 (25 C) - 8 HOUR MAX, 1 PER YEAR         40,000 U-GMS/M3 (25 C) - 1 HOUR MAX, 1 PER YEAR

                            HOUR
DAY     03        07        11        15        19        23      NO.    MEAN      MAX

01    0.001     0.001     0.002     0.003     0.005     0.008     6    0.003     0.008
02    0.001     0.001     0.002     0.003     0.005     0.008     6    0.003     0.008
03    0.002     0.002     0.004     0.006     0.010     0.016     6    0.006     0.016
04    0.003     0.003     0.006     0.009     0.015     0.024     6    0.010     0.024
05                                                                0
06                                                                0
07                                                                0
08    0.005     0.005     0.010     0.015     0.025     0.040     6    0.016     0.040
09                                                                0
10    0.008     0.008     0.016     0.024     0.040     0.014     6    0.018     0.040
11                                                                0
12                                                                0
13                                                                0
14                                                                0
15                                                                0
16                                                                0
17                                                                0
18    0.013     0.013     0.026     0.039     0.015     0.004     6    0.018     0.039
19    0.021     0.021     0.042     0.013     0.005     0.018     6    0.020     0.042
20    0.033     0.033     0.018     0.002     0.020     0.022     6    0.021     0.033
21                                                                0
22                                                                0
23    0.004     0.004     0.010     0.015     0.025     0.040     6    0.016     0.040
24                                                                0
25                                                                0
26    0.037     0.037     0.028     0.017     0.045     0.012     6    0.029     0.045
27    0.041     0.041     0.038     0.032     0.020     0.002     6    0.029     0.041

NO      12        12        12        12        12        12     72

MEAN  0.014     0.014     0.016     0.014     0.019     0.017          0.016

MAX   0.041     0.041     0.042     0.039     0.045     0.040                    0.045
```

Figure 7.1.3-1 Example of Standard Answer Report - 4 Hour Interval (Mean Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                               PAGE    13

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA                 PROJECT:  EPISODE MONITORING
PARAMETER:  CARBON DIOXIDE                            UNITS:  M-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:  340001001A06
COLLECTION METHOD:  GAS BUBBLER                       ANALYSIS METHOD:  PHENOLPHTHALEIN                 MONTH:  MAY
SAMPLING INTERVAL:  06 HOURS      SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...      YEAR:  1974
KEY-1:  340001001A06574  KEY-2:  050104  KEY-3:  4210291054  AREA:  0001  SITE:  001  UNITS CODE:  05 DECIMAL CODE:  4

                HOUR
DAY     04      10      16      22     NO.    MEAN     MAX

 01   .0001   .0001   .0002   .0003     4    .0001   .0003
 02                                     0
 03                                     0
 04                                     0
 05                                     0
 06                                     0
 07                                     0
 08                                     0
 09                                     0
 10   .0001   .0001   .0002   .0003     4    .0001   .0003
 11   .0002   .0002   .0004   .0006     4    .0003   .0006
 12   .0003   .0003   .0006   .0009     4    .0005   .0009
 13   .0005   .0005   .0010   .0015     4    .0008   .0015
 14                                     0
 15                                     0
 16                                     0
 17                                     0
 18   .0008   .0008   .0016   .0024     4    .0014   .0024
 19   .0013   .0013   .0026   .0039     4    .0022   .0039
 20   .0021   .0021   .0042   .0013     4    .0024   .0042
 21   .0033   .0033   .0018   .0002     4    .0021   .0033
 22   .0004   .0004   .0010   .0015     4    .0008   .0015
 23                                     0
 24                                     0
 25                                     0
 26   .0037   .0037   .0028   .0017     4    .0029   .0037
 27                                     0
 28                                     0
 29                                     0
 30   .0041   .0041   .0038   .0032     4    .0038   .0041

NO      12      12      12      12     48

MEAN  .0014   .0014   .0016   .0014          .0014

MAX   .0041   .0041   .0042   .0039                  .0042
```

Figure 7.1.3-1 Example of Standard Answer Report - 6 Hour Interval (Mean Option) (Continued)

```
                                        AIR QUALITY DATA REPORT                                              PAGE    14

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA             PROJECT:  EPISODE MONITORING
PARAMETER:  SULFUR DIOXIDE                          UNITS:  U-GMS/M3 (0DEG C, 1013 M-BARS)     SARDAD KEY:   340001001A06
COLLECTION METHOD:  DAVIS INSTRUMENT                 ANALYSIS METHOD:  SEQUENTIAL-CONDUCTOMETRIC         MONTH:  JUNE
SAMPLING INTERVAL:  08 HOURS        SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...         YEAR:  1974
KEY-1:  340001001A06674  KEY-2:  060105  KEY-3:  4240133021  AREA:  0001  SITE:  001  UNITS CODE:  02 DECIMAL CODE:  1

 TYPE                      PRIMARY STANDARD(S)                                   SECONDARY STANDARD(S)
FEDERAL          365 UG/M3 (0 C)  .14 PPM  24 HR. MAX, 1 PER YR.        260 UG/M3 (0 C)  .1  PPM  24 HR. MAX, 1 PER YR.

             HOUR
DAY    05       13       21     NO.    MEAN     MAX
01    0.1      0.1      0.2      3     0.1      0.2
02    0.1      0.1      0.2      3     0.1      0.2
03    0.2      0.2      0.4      3     0.2      0.4
04    0.3      0.3      0.6      3     0.4      0.6
05    0.5      0.5      1.0      3     0.6      1.0
06    0.8      0.8      1.6      3     1.0      1.6
07    1.3      1.3      2.6      3     1.7      2.6
08    2.1      2.1      4.2      3     2.8      4.2
09                               0
10                               0
11                               0
12                               0
13                               0
14                               0
15                               0
16                               0
17                               0
18                               0
19                               0
20                               0
21                               0
22                               0
23                               0
24    3.3      3.3      1.8      3     2.8      3.3
25                               0
26    0.4      0.4      1.0      3     0.6      1.0
27                               0
28    3.7      3.7      2.8      3     3.4      3.7
29                               0
30    4.1      4.1      3.8      3     4.0      4.1

NO     12       12       12     36
MEAN  1.4      1.4      1.6            1.5
MAX   4.1      4.1      4.2                     4.2
```

Figure 7.1.3-1 Example of Standard Answer Report

8 Hour Interval (Mean Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                          PAGE    15

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA             PROJECT:  EPISODE MONITORING
PARAMETER:  NITROGEN DIOXIDE                          UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:  340001001A06
COLLECTION METHOD:  GAS BUBBLER                       ANALYSIS METHOD:  SALTZMAN(100ML TU+ORIFIC)       MONTH:  JULY
SAMPLING INTERVAL:  12 HOURS        SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...       YEAR:  1974
KEY-1:  340001001A06774  KEY-2:  070106  KEY-3:  4260282072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                     PRIMARY STANDARD(S)                                 SECONDARY STANDARD(S)
FEDERAL         100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN       100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN

        HOUR
DAY    06        18      NO.    MEAN     MAX

01    0.01      0.01      2     0.01     0.01
02                        0
03    0.01      0.01      2     0.01     0.01
04                        0
05    0.02      0.02      2     0.02     0.02
06                        0
07    0.03      0.03      2     0.03     0.03
08                        0
09                        0
10                        0
11                        0
12                        0
13                        0
14    0.05      0.05      2     0.05     0.05
15                        0
16                        0
17                        0
18                        0
19                        0
20    0.08      0.08      2     0.08     0.08
21                        0
22    0.13      0.13      2     0.13     0.13
23                        0
24    0.21      0.21      2     0.21     0.21
25                        0
26    0.33      0.33      2     0.33     0.33
27                        0
28    0.04      0.04      2     0.04     0.04
29                        0
30    0.37      0.37      2     0.37     0.37
31    0.41      0.41      2     0.41     0.41

NO     12        12      24

MEAN  0.14      0.14            0.14

MAX   0.41      0.41                     0.41
```

Figure 7.1.3-1 Example of Standard Answer Report
12 Hour Interval (Mean Option) (Continued)

```
                                          AIR QUALITY DATA REPORT                                                    PAGE    3

AGENCY:  EPA - METEOROLOGICAL ACTIVITY        STATE:  MAINE                          PROJECT:  BACKGROUND SURVEILLANCE
PARAMETER: - SOILING INDEX (COH/1000LF)                UNITS:  COHS/1000 LINEAR FEET              SAROAD KEY:   200001004803
COLLECTION METHOD:  TAPE SAMPLER                       ANALYSIS METHOD:  TRANSMITTANCE
SAMPLING INTERVAL:  DAILY          SITE:  STATE = 20 (MAINE)  AREA-CODE = 0001  SITE-CODE = 004.....         YEAR:  1970
KEY-1:  200001004803870  KEY-2:  010100  KEY-3:  1120181091  AREA:  0001  SITE:  004  UNITS CODE:  09 DECIMAL CODE:  1

                                                   MONTH
DAY   JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC    NO.   MEAN    MAX
01    0.2    0.2    0.2    0.2    0.2    0.2    0.2    0.2    0.2    0.2    0.2    0.2    12    0.2    0.2
02                                                                                         0
03    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    12    0.6    0.6
04    0.7    0.7    0.7    0.7    0.7    0.7    0.7    0.7    0.7    0.7    0.7    0.7    12    0.7    0.7
05    0.5    0.5    0.5    0.5    0.5    0.5    0.5    0.5    0.5    0.5    0.5    0.5    12    0.5    0.5
06    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    12    0.8    0.8
07    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    12    0.9    0.9
08    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    12    1.0    1.0
09    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    12    1.2    1.2
10    1.5    1.5    1.5    1.5    1.5    1.5    1.5    1.5    1.5    1.5    1.5    1.5    12    1.5    1.5
11    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    12    1.0    1.0
12    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    12    1.1    1.1
13    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2    12    1.2    1.2
14    1.3    1.3    1.3    1.3    1.3    1.3    1.3    1.3    1.3    1.3    1.3    1.3    12    1.3    1.3
15    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    12    1.6    1.6
16    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    12    1.7    1.7
17    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    12    1.7    1.7
18    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    12    1.7    1.7
19    1.8    1.8    1.8    1.8    1.8    1.8    1.8    1.8    1.8    1.8    1.8    1.8    12    1.8    1.8
20    2.0    2.0    2.0    2.0    2.0    2.0    2.0    2.0    2.0    2.0    2.0    2.0    12    2.0    2.0
21    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    12    2.1    2.1
22    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    1.7    12    1.7    1.7
23    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    1.6    12    1.6    1.6
24    1.4    1.4    1.4    1.4    1.4    1.4    1.4    1.4    1.4    1.4    1.4    1.4    12    1.4    1.4
25    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    12    1.0    1.0
26    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    0.9    12    0.9    0.9
27    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    0.6    12    0.6    0.6
28    0.4    0.4    0.4    0.4    0.4    0.4    0.4    0.4    0.4    0.4    0.4    0.4    12    0.4    0.4
29    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8    12    0.8    0.8
30    0.3           0.3    0.3    0.3    0.3    0.3    0.3    0.3    0.3    0.3    0.3    11    0.3    0.3

NO    29     28     29     29     29     29     29     29     29     29     29     29     347

MEAN  1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1    1.1           1.1

MAX   2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1    2.1                 * 2.1
```

Figure 7.1.3-1 Example of Standard Answer Report - Daily Interval (Mean Option) (Continued)

```
                                    AIR QUALITY DATA REPORT                                         PAGE    57
AGENCY: COUNTY                           STATE: NORTH CAROLINA          PROJECT: COMPLAINT INVESTIGATION
PARAMETER: TOTAL HYDROCARBONS                 UNITS: U-GMS/M3 (0DEG C, 1013 M-BARS)    SARUAD KEY: 340003002G04
COLLECTION METHOD: INSTRUMENTAL               ANALYSIS METHOD: FLAME IONIZATION
SAMPLING INTERVAL: WEEKLY        SITE: STATE = 34 (N. CAR.) AREA CODE = 0003 SITE CODE = 002...      YEAR: 1974
KEY-1: 340003002G04974  KEY-2: 090100  KEY-3: 4310111020  AREA: 0003  SITE: 002  UNITS CODE: 02 DECIMAL CODE: 0
 TYPE                  PRIMARY STANDARD(S)
                                                               SECONDARY STANDARD(S)
FEDERAL        160 UG/M3 (0 C)  3 HOUR MAXIMUM, 1 PER YEAR.         160 UG/M3 (0 C)  3 HOUR MAXIMUM, 1 PER YEAR.

                                        MONTH
WEEK  JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC    NO.    MEAN    MAX
01
02                                                                    133                              1    133     133
                                                                      248                              1    248     248

NO      0       0       0       0       0       0       0       0       2       0       0       0      2
MEAN
                                                                      190                                   190
MAX
                                                                      248                                           248
```

Figure 7.1.3-1 Example of Standard Answer Report - Weekly Interval (Mean Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                    PAGE     4

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODE MONITORING

PARAMETER:  OXIDES OF NITROGEN                      UNITS:  PARTS PER MILLION (VOL/VOL)       SARDAD KEY:  340001001A06

COLLECTION METHOD:  GAS BUBBLER                      ANALYSIS METHOD:  SALTZMAN METHOD

SAMPLING INTERVAL:  MONTHLY                                                                       YEAR:  1973

KEY-1:  340001001A06A73  KEY-2:  010100  KEY-3:  4260399074  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  4

                                         MONTH

SITE  JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC     NO.    MEAN    MAX

001  .0027   .0028   .0038   .0046   .0029   .0036   .0042   .0059   .0083   .0072   .0064   .0027   12    .0045   .0083
```

Figure 7.1.3-1 Example of Standard Answer Report - Monthly Interval (Mean Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                          PAGE     5

AGENCY: EPA - ATMOSPHERIC SURVEILLANCE     STATE: NORTH CAROLINA          PROJECT: EPISODE MONITORING

PARAMETER: ALDEHYDE                          UNITS: U-GMS/M3 (0DEG C, 1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD: GAS BUBBLER                ANALYSIS METHOD: PARAROSANILINE

SAMPLING INTERVAL: QUARTERLY
                                                                                              YEAR: 1970
KEY-1: 340001001A06B70  KEY-2: 010100  KEY-3: 4350192021  AREA: 0001  SITE: 001  UNITS CODE: 02 DECIMAL CODE: 1

                 QUARTER

SITE  1ST     2ND     3RD     4TH     NO.     MEAN     MAX

001    5.5     5.6     6.6     7.8     4      6.3      7.8
```

Figure 7.1.3-1 Example of Standard Answer Report - Quarterly Interval (Mean Option) (Continued)

```
                                          AIR QUALITY DATA REPORT                                                      PAGE    36

AGENCY:  COUNTY                                   STATE:  NORTH CAROLINA           PROJECT:  COMPLAINT INVESTIGATION

PARAMETER:  FORMALDEHYDE                              UNITS:  U-GMS/M3 (25DEG C,1013 M-BARS)     SAROAD KEY:   340003002G04

COLLECTION METHOD:  GAS BUBBLER                        ANALYSIS METHOD:  CHROMATROPIC ACID

SAMPLING INTERVAL:  COMPOSITE      SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 002...          YEAR:  1973

KEY-1:  340003002G04C73  KEY-2:  019118  KEY-3:  4350291011  AREA:  0003  SITE:  002  UNITS CODE:  01 DECIMAL CODE:  1

COMPOSITE TYPE:  QUARTERLY

PD   RDING   SAMPLES TIME-CODE

01     3.3     91        8
02     2.7     91        8
03     1.0     91        8
04     3.7     91        8

NO       4

MEAN   2.6

MAX    3.7
```

Figure 7.1.3-1 Example of Standard Answer Report - Composite (Mean Option) (Continued)

```
                                          AIR QUALITY DATA REPORT                                          PAGE     1

AGENCY:  EPA - ABATEMENT ACTIVITY              STATE:  FLORIDA                    PROJECT:  SOURCE-ORIENTED AMBIENT SURV.
PARAMETER:  SULFUR DIOXIDE                                UNITS:  PARTS PER MILLION (VOL/VOL)        SARDAD KEY:   10000100IE02
COLLECTION METHOD:  INSTRUMENTAL                            ANALYSIS METHOD:  WEST-GAEKE COLORIMETRIC          MONTH:  JUNE
SAMPLING INTERVAL:  01 HOURS          SITE:  STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...          YEAR:  1971
KEY-1:  10000100IE02171  KEY-2:  060100  KEY-3:  4240111072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                      PRIMARY STANDARD(S)                                     SECONDARY STANDARD(S)
FEDERAL          365 UG/M3 (25 C) .14 PPM  24 HR. MAX, 1 PER YR.          260 UG/M3 (25 C) .1  PPM  24 HR. MAX, 1 PER YR.

                                                 HOUR
DAY   00      01      02      03      04      05      06      07      08      09      10      11

01   0.01    0.01    0.01    0.01    0.02    0.02    0.01    0.02    0.03    0.03    0.03    0.03
02   0.02    0.03    0.06    0.07    0.10    0.11    0.12    0.13    0.12    0.11    0.09    0.08
03   0.07    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.03    0.03    0.06    0.03
04   0.18    0.20    0.22    0.22    0.22    0.24    0.18    0.18    0.10    0.02    0.01    0.01
05   0.03    0.04    0.04    0.04    0.04    0.05    0.06    0.06    0.06    0.06    0.04    0.04
06   0.80    1.00    1.01    1.02    1.02    1.10    1.13    1.10    1.10    1.21    1.10    1.09
07                                                                   0.90    0.80    0.70    0.60
08   0.05    0.05    0.04    0.03    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.01
09   0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
10   0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
11   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
12   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
13   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
14   0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02
15   0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
16   0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02
17   0.04    0.06    0.02    0.01    0.01    0.00    0.00    0.00    0.00    0.00    0.00    0.00
18   0.06    0.06    0.06    0.06    0.06    0.03    0.01    0.04    0.06    0.08    0.07    0.07
19   0.02    0.03    0.03    0.06    0.10    0.11    0.11    0.12    0.13    0.16    0.16    0.16
20   0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.02    0.02
21   0.03    0.03    0.03    0.03    0.03    0.06    0.18    0.20    0.34    0.44    0.54    0.60
22   0.80    0.80    0.90    0.90    0.99    0.99    0.99    1.00
23   0.40    0.30    0.20    0.10    0.09    0.08    0.07    0.06    0.06    0.06    0.06    0.06
24   0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
25   0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
26   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
27   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
28   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
29   0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
30   0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02
```

Figure 7.1.3-1 Example of Standard Answer Report - One Hour Interval (Sum Option) (Continued)

```
                                AIR QUALITY DATA REPORT                                            PAGE    2

AGENCY:  EPA - ABATEMENT ACTIVITY              STATE:  FLORIDA                  PROJECT:  SOURCE-ORIENTED AMBIENT SURV.
PARAMETER:  SULFUR DIOXIDE                         UNITS:  PARTS PER MILLION (VOL/VOL)        SARDAD KEY:   100001001E02
COLLECTION METHOD:  INSTRUMENTAL                   ANALYSIS METHOD:  WEST-GAEKE COLORIMETRIC            MONTH:  JUNE
SAMPLING INTERVAL:  01 HOURS        SITE:  STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...          YEAR:  1971
KEY-1:  100001001E02171  KEY-2:  060100  KEY-3:  4240111072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                       PRIMARY STANDARD(S)                                 SECONDARY STANDARD(S)
FEDERAL        365 UG/M3 (25 C) .14 PPM  24 HR. MAX, 1 PER YR.         260 UG/M3 (25 C) .1  PPM  24 HR. MAX, 1 PER YR.

                                            HOUR
DAY    12      13      14      15      16      17      18      19      20      21      22      23     NO.     SUM

01    0.04    0.06    0.02    0.01    0.01    0.00    0.00    0.00    0.00    0.00    0.00    0.00    24      0.37
02    0.06    0.06    0.06    0.06    0.06    0.03    0.01    0.04    0.06    0.08    0.07    0.07    24      1.70
03    0.02    0.03    0.03    0.06    0.10    0.11    0.11    0.12    0.13    0.16    0.16    0.16    24      1.49
04    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.02    0.02    24      1.92
05    0.03    0.03    0.03    0.03    0.03    0.06    0.18    0.20    0.34    0.44    0.54    0.60    24      3.07
06    0.80    0.80    0.90    0.90    0.99    0.99    0.99    1.00    1.00    1.00    1.21    1.22    24     24.48
07    0.40    0.30    0.20    0.10    0.09    0.08    0.07    0.06    0.06    0.06    0.06    0.06    16      4.54
08    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24      0.38
09    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24      0.24
10    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.36
11    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
12    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
13    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
14    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.58
15    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.57
16    0.01    0.01    0.01    0.01    0.02    0.02    0.01    0.02    0.03    0.03    0.03    0.03    24      0.52
17    0.02    0.03    0.06    0.07    0.10    0.11    0.12    0.13    0.12    0.11    0.09    0.08    24      1.18
18    0.07    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.03    0.03    0.06    0.03    24      0.96
19    0.18    0.20    0.22    0.22    0.22    0.24    0.18    0.18    0.10    0.02    0.01    0.01    24      2.97
20    0.03    0.04    0.04    0.04    0.04    0.05    0.06    0.06    0.06    0.06    0.04    0.04    24      0.70
21    0.80    1.00    1.01    1.02    1.02    1.10    1.13    1.10    1.10    1.21    1.10    1.09    24     15.19
22                                    1.76    1.54    1.21    1.00    0.90    0.80    0.70    0.60    16     15.88
23    0.05    0.05    0.04    0.03    0.02    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24      1.80
24    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24      0.24
25    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    24      0.24
26    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
27    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
28    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.48
29    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.53
30    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    24      0.57
```

Figure 7.1.3-1 Example of Standard Answer Report - One Hour Interval (Sum Option) (Continued)

```
                                        AIR QUALITY DATA REPORT
                                                                                                    PAGE   10
AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE       STATE:  NORTH CAROLINA            PROJECT:  EPISODE MONITORING
PARAMETER:  SOILING INDEX (COH/1000LF)                UNITS:  COHS/1000 LINEAR FEET           SAROAD KEY:   340001001A06
COLLECTION METHOD:  TAPE SAMPLER                      ANALYSIS METHOD:  TRANSMITTANCE               MONTH:  FEBRUARY
SAMPLING INTERVAL:  02 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...     YEAR:  1974
KEY-1:  340001001A06274  KEY-2:  020101  KEY-3:  1120181091  AREA:  0001  SITE:  001  UNITS CODE:  09 DECIMAL CODE:  1

                                             HOUR
DAY    01     03     05     07     09     11     13     15     17     19     21     23    NO.    SUM
01     0.1    0.1    0.2    0.3    0.5    0.8    0.3    2.1                                 8      4.4
02                                                                                        0
03                                                                                        0
04     0.2    0.2    0.4    0.6    1.0    1.6    2.6    4.2                                 8     10.8
05                                                                                        0
06                                                                                        0
07                                                                                        0
08     0.5    0.5    1.0    1.5    2.5    4.0    1.5    0.5                                 8     12.0
09                                                                                        0
10                                                                                        0
11                                                                                        0
12     0.8    0.8    1.6    2.4    4.0    1.4    0.4    1.8                                 8     13.2
13                                                                                        0
14                                                                                        0
15                                                                                        0
16                                                                                        0
17                                                                                        0
18     2.1    2.1    4.2    1.3    0.5    1.8    2.3    4.1                                 8     18.4
19                                                                                        0
20                                                                                        0
21                                                                                        0
22                                                                                        0
23                                                                                        0
24                                                                                        0
25                                                                                        0
26                                                                                        0
27                                                                                        0
28     3.7    3.7    2.8    1.7    4.5    1.2    0.7    1.9                                 8     20.2
```

Figure 7.1.3-1 Example of Standard Answer Report - 2 Hour Interval (Sum Option) (Continued)

```
                                          AIR QUALITY DATA REPORT                                                    PAGE    11

AGENCY: EPA - ATMOSPHERIC SURVEILLANCE      STATE: NORTH CAROLINA           PROJECT: EPISODE MONITORING
PARAMETER: TOTAL SETTLED PARTICULATE                 UNITS: TONS/SQUARE MILE-MONTH          SAROAD KEY: 340001001A06
COLLECTION METHOD: BUCKET: JAR                          ANALYSIS METHOD: GRAVIMETRIC (APCA)              MONTH: MARCH
SAMPLING INTERVAL: 03 HOURS       SITE: STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR: 1974
KEY-1: 340001001A06374  KEY-2: 030102  KEY-3: 2110171902  AREA: 0001  SITE: 001  UNITS CODE: 90 DECIMAL-CODE: 2

                                 HOUR
DAY    02      05      08      11      14      17      20      23     NO.      SUM
 01   0.01    0.01    0.02    0.03    0.05    0.08    0.03    0.21     8      0.44
 02                                                                    0
 03   0.01    0.01    0.02    0.03    0.05    0.08    0.03    0.21     8      0.44
 04                                                                    0
 05                                                                    0
 06   0.02    0.02    0.04    0.06    0.10    0.16    0.26    0.42     8      1.08
 07                                                                    0
 08                                                                    0
 09                                                                    0
 10   0.03    0.03    0.06    0.09    0.15    0.24    0.39    0.13     8      1.12
 11                                                                    0
 12   0.05    0.05    0.10    0.15    0.25    0.40    0.15    0.05     8      1.20
 13   0.08    0.08    0.16    0.24    0.40    0.14    0.04    0.18     8      1.32
 14   0.13    0.13    0.26    0.39    0.15    0.04    0.19    0.23     8      1.52
 15   0.21    0.21    0.42    0.13    0.05    0.18    0.23    0.41     8      1.84
 16                                                                    0
 17                                                                    0
 18   0.33    0.33    0.18    0.02    0.20    0.22    0.42    0.14     8      1.84
 19                                                                    0
 20                                                                    0
 21                                                                    0
 22   0.04    0.04    0.10    0.15    0.25    0.40    0.15    0.05     8      1.18
 23   0.37    0.37    0.28    0.17    0.45    0.12    0.07    0.19     8      2.02
 24                                                                    0
 25                                                                    0
 26   0.41    0.41    0.38    0.32    0.20    0.02    0.22    0.24     8      2.20
```

Figure 7.1.3-1 Example of Standard Answer Report - 3 Hour Interval (Sum Option) (Continued)

```
                                             AIR QUALITY DATA REPORT                                   PAGE   12

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODE MONITORING

PARAMETER:  CARBON MONOXIDE                          UNITS:  M-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD:  INSTRUMENTAL                     ANALYSIS METHOD:  NONDISPERSIVE INFRA-RED         MONTH:  APRIL

SAMPLING INTERVAL:  04 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...      YEAR:  1974

KEY-1:  340001001A06474  KEY-2:  040103  KEY-3:  4210111053  AREA:  0001  SITE:  001  UNITS CODE:  05 DECIMAL CODE:  3

 TYPE                        PRIMARY STANDARD(S)                                     SECONDARY STANDARD(S)

FEDERAL      10,000 U-GMS/M3 (25 C) - 8 HOUR MAX, 1 PER YEAR         40,000 U-GMS/M3 (25 C) - 1 HOUR MAX, 1 PER YEAR


                             HOUR

DAY     03        07        11        15        19        23       NO.        SUM

01    0.001     0.001     0.002     0.003     0.005     0.008       6       0.020
02    0.001     0.001     0.002     0.003     0.005     0.008       6       0.020
03    0.002     0.002     0.004     0.006     0.010     0.016       6       0.040
04    0.003     0.003     0.006     0.009     0.015     0.024       6       0.060
05                                                                  0
06                                                                  0
07                                                                  0
08    0.005     0.005     0.010     0.015     0.025     0.040       6       0.100
09                                                                  0
10    0.008     0.008     0.016     0.024     0.040     0.014       6       0.110
11                                                                  0
12                                                                  0
13                                                                  0
14                                                                  0
15                                                                  0
16                                                                  0
17                                                                  0
18    0.013     0.013     0.026     0.039     0.015     0.004       6       0.110
19    0.021     0.021     0.042     0.013     0.005     0.018       6       0.120
20    0.033     0.033     0.018     0.002     0.020     0.022       6       0.128
21                                                                  0
22                                                                  0
23    0.004     0.004     0.010     0.015     0.025     0.040       6       0.098
24                                                                  0
25                                                                  0
26    0.037     0.037     0.028     0.017     0.045     0.012       6       0.176
27    0.041     0.041     0.038     0.032     0.020     0.002       6       0.174
```

Figure 7.1.3-1 Example of Standard Answer Report - 4 Hour Interval (Sum Option) (Continued)

```
                                    AIR QUALITY DATA REPORT                                       PAGE    13

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODE MONITORING

PARAMETER:  CARBON DIOXIDE                            UNITS:  M-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD:  GAS BUBBLER                        ANALYSIS METHOD:  PHENOLPHTHALEIN                MONTH:  MAY

SAMPLING INTERVAL:  06 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR:  1974

KEY-1:  340001001A06574  KEY-2:  050104  KEY-3:  4210291054  AREA:  0001  SITE:  001  UNITS CODE:  05 DECIMAL CODE:  4

                HOUR

DAY     04      10      16      22      NO.      SUM

01    .0001   .0001   .0002   .0003      4     0.0007
02                                       0
03                                       0
04                                       0
05                                       0
06                                       0
07                                       0
08                                       0
09                                       0
10    .0001   .0001   .0002   .0003      4     0.0007
11    .0002   .0002   .0004   .0006      4     0.0014
12    .0003   .0003   .0006   .0009      4     0.0021
13    .0005   .0005   .0010   .0015      4     0.0035
14                                       0
15                                       0
16                                       0
17                                       0
18    .0008   .0008   .0016   .0024      4     0.0056
19    .0013   .0013   .0026   .0039      4     0.0091
20    .0021   .0021   .0042   .0013      4     0.0097
21    .0033   .0033   .0018   .0002      4     0.0086
22    .0004   .0004   .0010   .0015      4     0.0033
23                                       0
24                                       0
25                                       0
26    .0037   .0037   .0028   .0017      4     0.0119
27                                       0
28                                       0
29                                       0
30    .0041   .0041   .0038   .0032      4     0.0152
```

Figure 7.1.3-1 Example of Standard Answer Report - 6 Hour Interval (Sum Option) (Continued)

```
                                    AIR QUALITY DATA REPORT                                          PAGE

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA          PROJECT:  EPISODE MONITORING

PARAMETER:  SULFUR DIOXIDE                          UNITS:  U-GMS/M3 (0DEG C, 1013 M-BARS)    SAROAD KEY:  34000100

COLLECTION METHOD:  DAVIS INSTRUMENT                ANALYSIS METHOD:  SEQUENTIAL-CONDUCTOMETRIC       MONTH:  JUNE

SAMPLING INTERVAL:  08 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...       YEAR:

KEY-1:  340001001A06674  KEY-2:  060105  KEY-3:  4240133021  AREA:  0001  SITE:  001  UNITS CODE:  02 DECIMAL CODE:

 TYPE                    PRIMARY STANDARD(S)                                      SECONDARY STANDARD(S)

FEDERAL       365 UG/M3 (0 C)  .14 PPM  24 HR. MAX, 1 PER YR.        260 UG/M3 (0 C)  .1  PPM  24 HR. MAX, 1 PER


               HOUR

DAY     05      13      21     NO.     SUM

01      0.1     0.1     0.2     3       0.4
02      0.1     0.1     0.2     3       0.4
03      0.2     0.2     0.4     3       0.8
04      0.3     0.3     0.6     3       1.2
05      0.5     0.5     1.0     3       2.0
06      0.8     0.8     1.6     3       3.2
07      1.3     1.3     2.6     3       5.2
08      2.1     2.1     4.2     3       8.4
09                              0
10                              0
11                              0
12                              0
13                              0
14                              0
15                              0
16                              0
17                              0
18                              0
19                              0
20                              0
21                              0
22                              0
23                              0
24      3.3     3.3     1.8     3       8.4
25                              0
26      0.4     0.4     1.0     3       1.8
27                              0
28      3.7     3.7     2.8     3      10.2
29                              0
30      4.1     4.1     3.8     3      12.0
```

Figure 7.1.3-1 Example of Standard Answer Report - 8 Hour Interval (Sum Option) (Continued)

```
                                          AIR QUALITY DATA REPORT                                                PAGE   15

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE       STATE:  NORTH CAROLINA            PROJECT:  EPISODE MONITORING

PARAMETER:  NITROGEN DIOXIDE                           UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:  340001001A06

COLLECTION METHOD:  GAS BUBBLER                        ANALYSIS METHOD:  SALTZMAN(100ML TU+ORIFIC)        MONTH:  JULY

SAMPLING INTERVAL:  12 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR:  1974

KEY-1:  340001001A06774  KEY-2:  070106  KEY-3:  4260282072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                         PRIMARY STANDARD(S)                                     SECONDARY STANDARD(S)

FEDERAL          100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN        100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN

         HOUR

DAY     06        18      NO.      SUM

01     0.01     0.01      2       0.02
02                        0
03     0.01     0.01      2       0,02
04                        0
05     0.02     0.02      2       0.04
06                        0
07     0.03     0.03      2       0.06
08                        0
09                        0
10                        0
11                        0
12                        0
13                        0
14     0.05     0.05      2       0.10
15                        0
16                        0
17                        0
18                        0
19                        0
20     0.08     0.08      2       0.16
21                        0
22     0.13     0.13      2       0.26
23                        0
24     0.21     0.21      2       0.42
25                        0
26     0.33     0.33      2       0.66
27                        0
28     0.04     0.04      2       0.08
29                        0
30     0.37     0.37      2       0.74
31     0.41     0.41      2       0.82
```

Figure 7.1.3-1 Example of Standard Answer Report - 12 Hour Interval (Sum Option) (Continued)

```
                                   AIR QUALITY DATA REPORT                                              PAGE    3

AGENCY:  EPA - METEOROLOGICAL ACTIVITY      STATE:  MAINE                       PROJECT:  BACKGROUND SURVEILLANCE

PARAMETER:  SOILING INDEX (COH/1000LF)            UNITS:  COHS/1000 LINEAR FEET              SAROAD KEY:   200001004B03

COLLECTION METHOD:  TAPE SAMPLER                  ANALYSIS METHOD:  TRANSMITTANCE

SAMPLING INTERVAL:  DAILY         SITE:  STATE = 20 (MAINE)  AREA-CODE = 0001  SITE-CODE = 004.....       YEAR:  1970

KEY-1:  200001004B03870  KEY-2:  010100  KEY-3:  1120181091  AREA:  0001  SITE:  004  UNITS CODE:  09 DECIMAL CODE:  1

                                           MONTH

DAY   JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC    NO.     SUM

01    0.2     0.2     0.2     0.2     0.2     0.2     0.2     0.2     0.2     0.2     0.2     0.2    12      2.4
02                                                                                                  0
03    0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6    12      7.2
04    0.7     0.7     0.7     0.7     0.7     0.7     0.7     0.7     0.7     0.7     0.7     0.7    12      8.4
05    0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5    12      6.0
06    0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8    12      9.6
07    0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9    12     10.8
08    1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0    12     12.0
09    1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2    12     14.4
10    1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5    12     18.0
11    1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0    12     12.0
12    1.1     1.1     1.1     1.1     1.1     1.1     1.1     1.1     1.1     1.1     1.1     1.1    12     13.2
13    1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2     1.2    12     14.4
14    1.3     1.3     1.3     1.3     1.3     1.3     1.3     1.3     1.3     1.3     1.3     1.3    12     15.6
15    1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6    12     19.2
16    1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7    12     20.4
17    1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7    12     20.4
18    1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7    12     20.4
19    1.8     1.8     1.8     1.8     1.8     1.8     1.8     1.8     1.8     1.8     1.8     1.8    12     21.6
20    2.0     2.0     2.0     2.0     2.0     2.0     2.0     2.0     2.0     2.0     2.0     2.0    12     24.0
21    2.1     2.1     2.1     2.1     2.1     2.1     2.1     2.1     2.1     2.1     2.1     2.1    12     25.2
22    1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7     1.7    12     20.4
23    1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6     1.6    12     19.2
24    1.4     1.4     1.4     1.4     1.4     1.4     1.4     1.4     1.4     1.4     1.4     1.4    12     16.8
25    1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0     1.0    12     12.0
26    0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9     0.9    12     10.8
27    0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6     0.6    12      7.2
28    0.4     0.4     0.4     0.4     0.4     0.4     0.4     0.4     0.4     0.4     0.4     0.4    12      4.8
29    0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8     0.8    12      9.6
30    0.3             0.3     0.3     0.3     0.3     0.3     0.3     0.3     0.3     0.3     0.3    11      3.3
```

Figure 7.1.3-1 Example of Standard Answer Report - Daily Interval (Sum Option) (Continued)

```
                                        AIR QUALITY DATA REPORT                                            PAGE     4

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA          PROJECT:  EPISODE MONITORING

PARAMETER:  OXIDES OF NITROGEN                        UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:   340001001A06

COLLECTION METHOD:  GAS BUBBLER                        ANALYSIS METHOD:  SALTZMAN METHOD

SAMPLING INTERVAL:  MONTHLY                                                                            YEAR:  1973

KEY-1:  340001001A06A73  KEY-2:  010100  KEY-3:  4260399074  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  4

                                        MONTH

SITE  JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC    NO.     SUM

001  .0027   .0028   .0038   .0046   .0029   .0036   .0042   .0059   .0083   .0072   .0064   .0027   12    0.0551
```

Figure 7.1.3-1 Example of Standard Answer Report - Monthly Interval (Sum Option) (Continued)

```
                              AIR QUALITY DATA REPORT                                   PAGE    5

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODE MONITORING

PARAMETER:  ALDEHYDE                                 UNITS:  U-GMS/M3 (0DEG C, 1013 M-BARS)    SAROAD KEY:   340001001A06

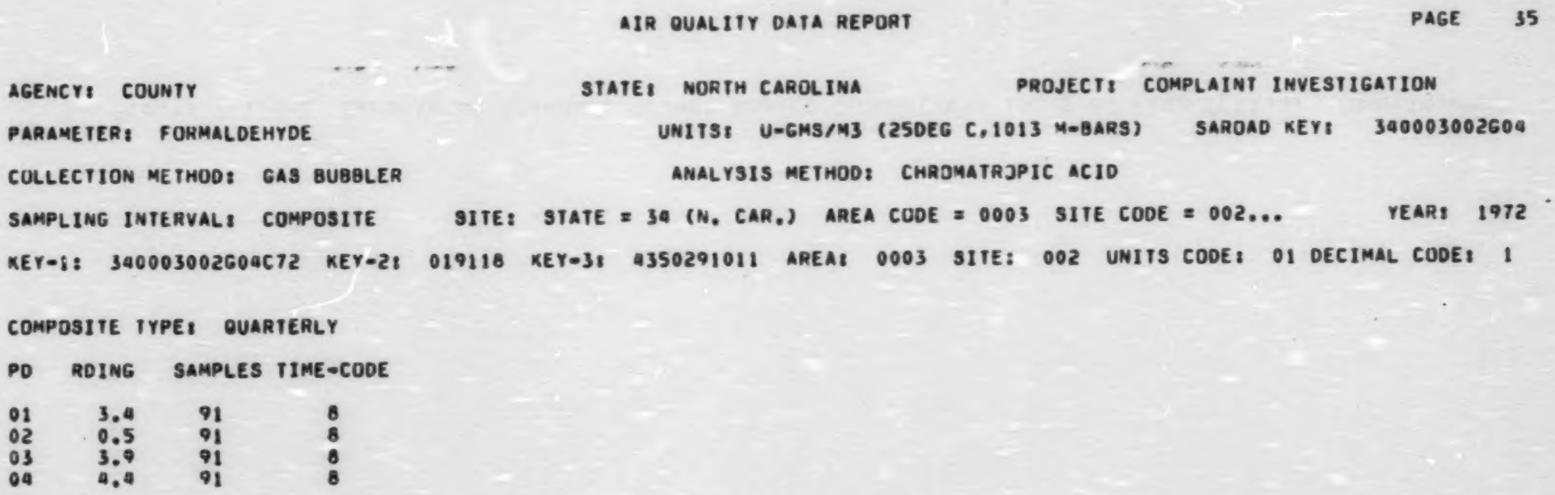
COLLECTION METHOD:  GAS BUBBLER                      ANALYSIS METHOD:  PARAROSANILINE

SAMPLING INTERVAL:  QUARTERLY                                                                   YEAR:  1970

KEY-1:  340001001A06B70  KEY-2:  010100  KEY-3:  4350192021  AREA:  0001  SITE:  001  UNITS CODE:  02 DECIMAL CODE:  1

               QUARTER
SITE   1ST      2ND      3RD      4TH      NO.      SUM
001    5.5      5.6      6.6      7.8      4        25.5
```

Figure 7.1.3-1 Example of Standard Answer Report - Quarterly Interval (Sum Option) (Continued)



```
                                   AIR QUALITY DATA REPORT                                   PAGE    35

AGENCY:  COUNTY                                 STATE:  NORTH CAROLINA          PROJECT:  COMPLAINT INVESTIGATION

PARAMETER:  FORMALDEHYDE                              UNITS:  U-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:   340003002G04

COLLECTION METHOD:  GAS BUBBLER                         ANALYSIS METHOD:  CHROMATROPIC ACID

SAMPLING INTERVAL:  COMPOSITE     SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 002...        YEAR:  1972

KEY-1:  340003002G04C72  KEY-2:  019118  KEY-3:  4350291011  AREA:  0003  SITE:  002  UNITS CODE:  01 DECIMAL CODE:  1

COMPOSITE TYPE:  QUARTERLY

PD    RDING    SAMPLES TIME-CODE

01     3.4      91        8
02     0.5      91        8
03     3.9      91        8
04     4.4      91        8
```

Figure 7.1.3-1 Example of Standard Answer Report - Composite (Sum Option) (Continued)

```
              AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                PAGE     1

AGENCY:  EPA - ABATEMENT ACTIVITY             STATE:  FLORIDA                     PROJECT:  SOURCE-ORIENTED AMBIENT SURV.

PARAMETER:  SULFUR DIOXIDE                             UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:   100001001E02

COLLECTION METHOD:  INSTRUMENTAL                      ANALYSIS METHOD:  WEST-GAEKE COLORIMETRIC          MONTH:  JUNE

SAMPLING INTERVAL:  01 HOURS        SITE:  STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...         YEAR:  1971

KEY-1:  100001001E02171  KEY-2:  060100  KEY-3:  4240111072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                        PRIMARY STANDARD(S)                                            SECONDARY STANDARD(S)

FEDERAL          365 UG/M3 (25 C) .14 PPM  24 HR, MAX, 1 PER YR.           260 UG/M3 (25 C) .1  PPM  24 HR, MAX, 1 PER YR.

                                              HOUR

DAY    00      01      02      03      04      05      06      07      08      09      10      11

01     ***     0.01    0.01    0.01    0.01    0.02    0.02    0.02    0.02    0.03    0.03    0.03
02     0.01    0.02    0.04    0.05    0.08    0.09    0.11    0.12    0.12    0.12    0.11    0.09
03     0.07    0.05    0.03    0.01    0.01    0.01    0.01    0.01    0.02    0.02    0.04    0.04
04     0.17    0.18    0.20    0.21    0.22    0.23    0.21    0.20    0.15    0.10    0.04    0.01
05     0.02    0.03    0.04    0.04    0.04    0.04    0.05    0.06    0.06    0.06    0.05    0.05
06     0.65    0.80    0.94    1.01    1.02    1.05    1.08    1.11    1.11    1.14    1.14    1.13
07     1.22    ***     ***     ***     ***     ***     ***     ***     ***     0.85    0.80    0.70
08     0.06    0.05    0.05    0.04    0.03    0.02    0.01    0.01    0.01    0.01    0.01    0.01
09     0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
10     0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
11     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
12     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
13     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
14     0.02    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02
15     0.02    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02    0.02
16     0.02    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02
17     0.03    0.04    0.04    0.03    0.01    0.01    0.00    0.00    0.00    0.00    0.00    0.00
18     0.08    0.07    0.06    0.06    0.06    0.05    0.03    0.03    0.04    0.06    0.07    0.07
19     0.04    0.03    0.03    0.04    0.06    0.09    0.11    0.11    0.12    0.14    0.15    0.16
20     0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.02
21     0.04    0.03    0.03    0.03    0.03    0.04    0.09    0.15    0.24    0.33    0.44    0.53
22     1.00    0.90    0.83    0.87    0.93    0.96    0.99    0.99    1.00    ***     ***     ***
23     0.57    0.43    0.30    0.20    0.13    0.09    0.08    0.07    0.06    0.06    0.06    0.06
24     0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
25     0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
26     0.01    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
27     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
28     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
29     0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02    0.02
30     0.02    0.03    0.03    0.03    0.03    0.03    0.02    0.02    0.02    0.02    0.02    0.02

*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - One Hour Interval

```
            AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                    PAGE     2

AGENCY:  EPA - ABATEMENT ACTIVITY           STATE:  FLORIDA                        PROJECT:  SOURCE-ORIENTED AMBIENT SURV.

PARAMETER:  SULFUR DIOXIDE                               UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:   100001001E02

COLLECTION METHOD:  INSTRUMENTAL                          ANALYSIS METHOD:  WEST-GAEKE COLORIMETRIC          MONTH:  JUNE

SAMPLING INTERVAL:  01 HOURS       SITE:  STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...          YEAR:  1971

KEY-1:  100001001E02171  KEY-2:  060100  KEY-3:  4240111072  AREA:  0001  SITE:  001  UNITS CODE:  07 DECIMAL CODE:  2

 TYPE                     PRIMARY STANDARD(S)                                     SECONDARY STANDARD(S)

FEDERAL         365 UG/M3 (25 C) .14 PPM  24 HR, MAX, 1 PER YR.        260 UG/M3 (25 C) .1  PPM  24 HR, MAX, 1 PER YR.

                                                      HOUR

DAY     12        13        14        15        16        17        18        19        20        21        22        23

01     0.03      0.04      0.04      0.03      0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00
02     0.08      0.07      0.06      0.06      0.06      0.05      0.03      0.03      0.04      0.06      0.07      0.07
03     0.04      0.03      0.03      0.04      0.06      0.09      0.11      0.11      0.12      0.14      0.15      0.16
04     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.02
05     0.04      0.03      0.03      0.03      0.03      0.04      0.09      0.15      0.24      0.33      0.44      0.53
06     1.00      0.90      0.83      0.87      0.93      0.96      0.99      0.99      1.00      1.00      1.07      1.14
07     0.57      0.43      0.30      0.20      0.13      0.09      0.08      0.07      0.06      0.06      0.06      0.06
08     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
09     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
10     0.01      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
11     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
12     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
13     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
14     0.02      0.03      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02      0.02
15     0.02      0.03      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02      0.02
16     0.02      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.03      0.03      0.03
17     0.01      0.02      0.04      0.05      0.08      0.09      0.11      0.12      0.12      0.12      0.11      0.09
18     0.07      0.05      0.03      0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.04      0.04
19     0.17      0.18      0.20      0.21      0.22      0.23      0.21      0.20      0.15      0.10      0.04      0.01
20     0.02      0.03      0.04      0.04      0.04      0.04      0.05      0.06      0.06      0.06      0.05      0.05
21     0.65      0.80      0.94      1.01      1.02      1.05      1.08      1.11      1.11      1.14      1.14      1.13
22     ***       ***       ***       ***       ***                          1.25      1.04      0.90      0.80      0.70
23     0.06      0.05      0.05      0.04      0.03      0.02      0.01      0.01      0.01      0.01      0.01      0.01
24     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
25     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
26     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
27     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
28     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
29     0.02      0.03      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02      0.02
30     0.02      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02      0.02      0.02

*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - One Hour Interval (Continued)

```
          AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS             PAGE     8

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA          PROJECT:  EPISODE MONITORING

PARAMETER:  SOILING INDEX (COH/1000LF)              UNITS:  COHS/1000 LINEAR FEET            SAROAD KEY:   340001001A06

COLLECTION METHOD:  TAPE SAMPLER                     ANALYSIS METHOD:  TRANSMITTANCE                    MONTH:  FEBRUARY

SAMPLING INTERVAL:  02 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR:  1974

KEY-1:  340001001A06274  KEY-2:  020191  KEY-3:  1120181091  AREA:  0001  SITE:  001  UNITS CODE:  09 DECIMAL CODE:  1

                                                HOUR

DAY    01       03       05       07       09       11       13       15       17       19       21       23

01    ***      0.1      0.1      0.2      0.3      0.5      0.5      1.1      1.2      ***      ***      ***
02
03
04    ***      0.2      0.3      0.4      0.7      1.1                                  ***      ***      ***
05
06
07
08    ***      0.5      0.7      1.0                                           1.0      ***      ***      ***
09
10
11
12    ***      0.8      1.1                                           1.2      1.1      ***      ***      ***
13
14
15
16
17
18    ***                                           1.2                                  ***      ***      ***
19
20
21
22
23
24
25
26
27
28    ***                                                                              ***      ***      ***

*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - 2 Hour Interval (Continued)

```
             AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS              PAGE     9

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA.           PROJECT:  EPISODE MONITORING

PARAMETER:  TOTAL SETTLED PARTICULATE               UNITS:  TONS/SQUARE MILE-MONTH          SAROAD KEY:   340001001A06

COLLECTION METHOD:  BUCKET; JAR                      ANALYSIS METHOD:  GRAVIMETRIC (APCA)            MONTH:  MARCH

SAMPLING INTERVAL:  03 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR:  1974

KEY-1:  340001001A06374  KEY-2:  030102  KEY-3:  2110171902  AREA:  0001  SITE:  001  UNITS CODE:  90 DECIMAL CODE:  2

                                 HOUR

DAY    02       05       08       11       14       17       20       23

01     ***      0.01     0.01     0.02     0.03     0.05     0.05     0.11
02
03     ***      0.01     0.01     0.02     0.03     0.05     0.05     0.11
04
05
06     ***      0.02     0.03     0.04     0.07     0.11     0.17     0.28
07
08
09
10     ***      0.03     0.04     0.06     0.10     0.16     0.26     0.25
11
12     ***      0.05     0.07     0.10     0.17     0.27     0.27     0.20
13     0.09     0.07     0.11     0.16     0.27     0.26     0.19     0.12
14     0.12     0.15     0.17     0.26     0.27     0.19     0.13     0.15
15     0.21     0.22     0.28     0.25     0.20     0.12     0.15     0.27
16
17
18     ***      0.33     0.28     0.18     0.13     0.15     0.28     0.26
19
20
21
22     ***      0.04     0.06     0.10     0.17     0.27     0.27     0.20
23     0.19     0.26     0.34     0.27     0.30     0.25     0.21     0.13
24
25
26     ***      0.41     0.40     0.37     0.30     0.18     0.15     0.16

*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - 3 Hour Interval (Continued)

```
                AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                PAGE   10

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODE MONITORING

PARAMETER:  CARBON MONOXIDE                            UNITS:  M-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD:  INSTRUMENTAL                        ANALYSIS METHOD:  NONDISPERSIVE INFRA-RED        MONTH:  APRIL

SAMPLING INTERVAL:  04 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001         YEAR:  1974

KEY-1:  340001001A06474  KEY-2:  040103  KEY-3:  4210111053  AREA:  0001  SITE:  001  UNITS CODE:  05 DECIMAL CODE:  3

 TYPE                     PRIMARY STANDARD(S)                                            SECONDARY STANDARD(S)

FEDERAL      10,000 UG/M3 (25 C)   9 PPM  8 HR. MAX, 1 PER YR.       40,000 UG/M3 (25 C)  35 PPM  1 HR. MAX, 1 PER YR.

                        HOUR

DAY    03       07       11       15       19       23

01     ***     0.001    0.001    0.002    0.003    0.005
02    0.005    0.003    0.001    0.002    0.003    0.005
03    0.005    0.004    0.003    0.004    0.007    0.011
04    0.010    0.007    0.004    0.006    0.010    0.016
05
06
07
08     ***     0.005    0.007    0.010    0.017    0.027
09
10     ***     0.008    0.011    0.016    0.027    0.026
11
12
13
14
15
16
17
18     ***     0.013    0.017    0.026    0.027    0.019
19    0.013    0.015    0.028    0.025    0.020    0.012
20    0.019    0.028    0.028    0.018    0.013    0.015
21
22
23     ***     0.004    0.006    0.010    0.017    0.027
24
25
26     ***     0.037    0.034    0.027    0.030    0.025
27    0.033    0.031    0.040    0.037    0.030    0.018
*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - 4 Hour Interval (Continued)

```
            AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                PAGE    11

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA           PROJECT:  EPISODF MONITORING

PARAMETER:  CARBON DIOXIDE                          UNITS:  M-GMS/M3 (25DEG C,1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD:  GAS BUBBLER                      ANALYSIS METHOD:  PHENOLPHTHALEIN              MONTH:  MAY

SAMPLING INTERVAL:  06 HOURS      SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...       YEAR:  1974

KEY-1:  340001001A06574  KEY-2:  050104  KEY-3:  4210291054  AREA:  0001  SITE:  001  UNITS CODE:  05 DECIMAL CODE:  4

               HOUR

DAY    04      10      16      22

01     ***    .0001   .0001   .0002
02
03
04
05
06
07
08
09
10     ***    .0001   .0001   .0002
11   .0002    .0002   .0003   .0004
12   .0004    .0004   .0004   .0006
13   .0007    .0006   .0007   .0010
14
15
16
17
18     ***    .0008   .0011   .0016
19   .0018    .0017   .0017   .0026
20   .0722    .1413   .2800   .2533
21   .1844    .0455   .0028   .0018
22   .0008    .0003   .0006   .0010
23
24
25
26     ***    .0037   .0034   .0027
27
28
29
30     ***    .0041   .0040   .0037
*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Averge Report - 6 Hour Interval (Continued)

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          AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                PAGE   12

AGENCY:  EPA - ATMOSPHERIC SURVEILLANCE      STATE:  NORTH CAROLINA          PROJECT:  EPISODE MONITORING

PARAMETER:  SULFUR DIOXIDE                       UNITS:  U-GMS/M3 (0DEG C, 1013 M-BARS)    SAROAD KEY:   340001001A06

COLLECTION METHOD:  DAVIS INSTRUMENT              ANALYSIS METHOD:  SEQUENTIAL-CONDUCTOMETRIC       MONTH:  JUNE

SAMPLING INTERVAL:  08 HOURS       SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...        YEAR:  1974

KEY-1:  340001001A06674  KEY-2:  060105  KEY-3:  4240133021  AREA:  0001  SITE:  001  UNITS CODE:  02 DECIMAL CODE:  1

 TYPE                      PRIMARY STANDARD(S)                                    SECONDARY STANDARD(S)

FEDERAL         365 UG/M3 (0 C)  .14 PPM  24 HR. MAX, 1 PER YR.         260 UG/M3 (0 C)  .1  PPM  24 HR. MAX, 1 PER YR.

              HOUR

DAY     05     13     21

01     ***     0.1    0.1
02      0.1    0.1    0.1
03      0.2    0.2    0.3
04      0.3    0.3    0.4
05      0.5    0.5    0.7
06      0.8    0.9    1.1
07      1.2
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24     ***
25
26     ***     0.4    0.6
27
28     ***
29
30     ***
*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - 8 Hour Interval (Continued)

```
              AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                    PAGE     3

AGENCY:  EPA - METEOROLOGICAL ACTIVITY        STATE:  MAINE                         PROJECT:  BACKGROUND SURVEILLANCE

PARAMETER:  SOILING INDEX (COH/1000LF)              UNITS:  COHS/1000 LINEAR FEET                SAROAD KEY:   200001004B03

COLLECTION METHOD:  TAPE SAMPLER                     ANALYSIS METHOD:  TRANSMITTANCE

SAMPLING INTERVAL:  DAILY         SITE:  STATE = 20 (MAINE)  AREA CODE = 0001  SITE CODE = 004.....          YEAR:  1970

KEY-1:  200001004B03870  KEY-2:  010100  KEY-3:  1120181091  AREA:  0001  SITE:  004  UNITS CODE:  09 DECIMAL CODE:  1

                                                         MONTH

DAY   JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC

01    ***       0.3     0.4       0.3     0.4       0.3     0.4       0.3      0.3     0.4       0.3     0.4
02    ***      ***      0.3      ***      0.3      ***      0.3      ***      ***      0.3      ***      0.3
03     0.4      0.4     0.4       0.4     0.4       0.4     0.4       0.4      0.4     0.4       0.4     0.4
04     0.7      0.7     0.7       0.7     0.7       0.7     0.7       0.7      0.7     0.7       0.7     0.7
05     0.6      0.6     0.6       0.6     0.6       0.6     0.6       0.6      0.6     0.6       0.6     0.6
06     0.7      0.7     0.7       0.7     0.7       0.7     0.7       0.7      0.7     0.7       0.7     0.7
07     0.7      0.7     0.7       0.7     0.7       0.7     0.7       0.7      0.7     0.7       0.7     0.7
08     0.9      0.9     0.9       0.9     0.9       0.9     0.9       0.9      0.9     0.9       0.9     0.9
09     1.0      1.0     1.0       1.0     1.0       1.0     1.0       1.0      1.0     1.0       1.0     1.0
10     1.2      1.2     1.2       1.2     1.2       1.2     1.2       1.2      1.2     1.2       1.2     1.2
11     1.2      1.2     1.2       1.2     1.2       1.2     1.2       1.2      1.2     1.2       1.2     1.2
12     1.2      1.2     1.2       1.2     1.2       1.2     1.2       1.2      1.2     1.2       1.2     1.2
13     1.1      1.1     1.1       1.1     1.1       1.1     1.1       1.1      1.1     1.1       1.1     1.1
14     1.2      1.2     1.2       1.2     1.2       1.2     1.2       1.2      1.2     1.2       1.2     1.2
15
16
17
18
19
20
21
22
23
24
25
26     1.1      1.1     1.1       1.1     1.1       1.1     1.1       1.1      1.1     1.1       1.1     1.1
27     0.8      0.8     0.8       0.8     0.8       0.8     0.8       0.8      0.8     0.8       0.8     0.8
28     0.6      0.6     0.6       0.6     0.6       0.6     0.6       0.6      0.6     0.6       0.6     0.6
29     0.6              0.6       0.6     0.6       0.6     0.6       0.6      0.6     0.6       0.6     0.6
30     0.5              0.5       0.5     0.5       0.5     0.5       0.5      0.5     0.6       0.6     0.6
31     0.6              0.6               0.6               0.6       0.6              0.5       0.5     0.5
                                                                                      0.6               0.6
*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - Daily Interval (Continued)

```
            AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                PAGE    26

AGENCY:  COUNTY                                  STATE:  NORTH CAROLINA          PROJECT:  COMPLAINT INVESTIGATION

PARAMETER:  ALDEHYDE                            UNITS:  PARTS PER MILLION (VOL/VOL)       SAROAD KEY:   340003002G04

COLLECTION METHOD:  GAS BUBBLER                  ANALYSIS METHOD:  PARAROSANILINE

SAMPLING INTERVAL:  WEEKLY        SITE:  STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 002...         YEAR:  1974

KEY-1:  340003002G04974  KEY-2:  090100  KEY-3:  4350192073  AREA:  0003  SITE:  002  UNITS CODE:  07 DECIMAL CODE:  3

                                                      MONTH

WEEK  JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC

01                                                                              ***
02                                                                             0.010
03                                                                             0.010
04                                                                              ***
05                                                                              ***

*** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - Weekly Interval (Continued)

```
               AIR QUALITY DATA SLIDING AVERAGE REPORT - SLIDING AVERAGE FOR   3 INTERVALS                   PAGE     5

     AGENCY: EPA - ATMOSPHERIC SURVEILLANCE      STATE: NORTH CAROLINA           PROJECT: EPISODE MONITORING

     PARAMETER: OXIDES OF NITROGEN                       UNITS: PARTS PER MILLION (VOL/VOL)       SAROAD KEY:  340001001A06

     COLLECTION METHOD: GAS BUBBLER                       ANALYSIS METHOD: SALTZMAN METHOD

     SAMPLING INTERVAL: MONTHLY                                                                          YEAR: 1973

     KEY-1: 340001001A06A73  KEY-2: 010100  KEY-3: 4260399074  AREA: 0001  SITE: 001  UNITS CODE: 07 DECIMAL CODE: 4

                                                   MONTH

     SITE  JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC

     001   ***    .0028   .0028   .0037   .0038   .0037   .0033   .0048   .0071   .0071   .0073   .0054

     *** INDICATES SLIDING AVERAGE VALUE NOT COMPUTED DUE TO INSUFFICIENT NUMBER OF READINGS IN FILE.
     BLANK INDICATES SLIDING AVERAGE VALUE DID NOT MEET DISPLAY CRITERIA OR DID NOT MEET SELECTION CRITERIA.
```

Figure 7.1.3-2 Example of Sliding Average Report - Monthly Interval (Continued)

7.2 AQDHS-II SLIDING AVERAGE PROGRAM

The Sliding Average program of AQDHS-II computes the values of the sliding average for arbitrary intervals selected by the user. The program performs these calculations on data contained in a sliding average answer set generated by the Retrieval program. The sliding average is computed for the data values without regard to the decimal code. The formula used for this computation is:

$$S_i = \frac{1}{M} \sum_{j=i-M+1}^{i} Rj$$

where:

S_i=the i^th sliding average

M =the interval over which the average is computed

R =the reading value

j =index to the position of R in the series of all R's

The sliding average is placed in a Reading position in an output file such that it is composed of that Reading plus the (M-1) immediately preceding Readings. All reading positions in the output file will contain a computed sliding average value, provided a sufficient number of readings were contained on the master file. If a sliding average for a reading cannot be computed, due to insufficient data, the corresponding position is set to (9998) which causes *** to be printed in that position by the Detail List program. In order for a sliding average to be computed there must be at least (M+1)/2 valid readings (rounded to the nearest whole number) in the interval M. The following examples show this requirement:

For a three (3) hour reading interval

(3+1)/2 = 2 valid readings required

For an eight (8) hour reading interval

(8+1)/2 = 4.5 rounded to 5 valid readings required

For a twenty-four (24) hour reading interval

(24+1)/2 = 12.5 rounded to 13 valid readings required

The interval selected by the user must be less than the maximum number of readings that can be contained in a master file record. Thus the maximum interval size will depend upon the type of data as specified by the TIME-CODE. Figure 7.2-1 provides a table of maximum interval sizes versus TIME CODES. Sliding averages may be computed for all types of readings, however composite readings would give meaningless results and therefore should be avoided.

Time Code	Interval	Maximum Interval Size
1	1 Hour	23
2	2 Hour	11
3	3 Hour	7
4	4 Hour	5
5	6 Hour	3
6	8 Hour	2
7	12 Hour	Not Applicable
8	Daily	27, 28, 29, 30 or 31 depending on month
9	Weekly	3
A	Monthly	11
B	Quarterly	3
C	Composite	Not Applicable

Figure 7.2-1. Maximum Interval Size for Sliding Average Calculation

7.2.1 SLIDING AVERAGE PROGRAM EDITS

The Sliding Average program performs a number of edits to ascertain that the program will process the input data. On performing the edit function, the program detects the following error conditions:

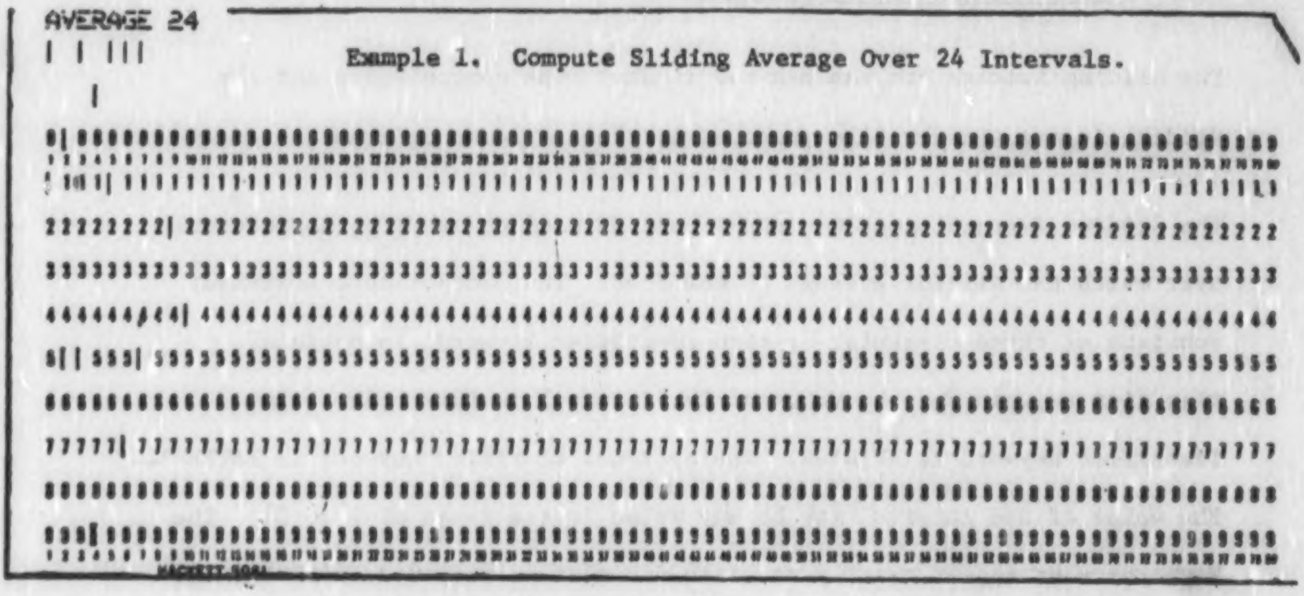
- The control card is missing
- The input file was not a Sliding Average Answer file
- The input file name designated a non-existent file or the named file contained no data.

When any of these conditions are detected the program prints an error message and terminates without processing the input file.

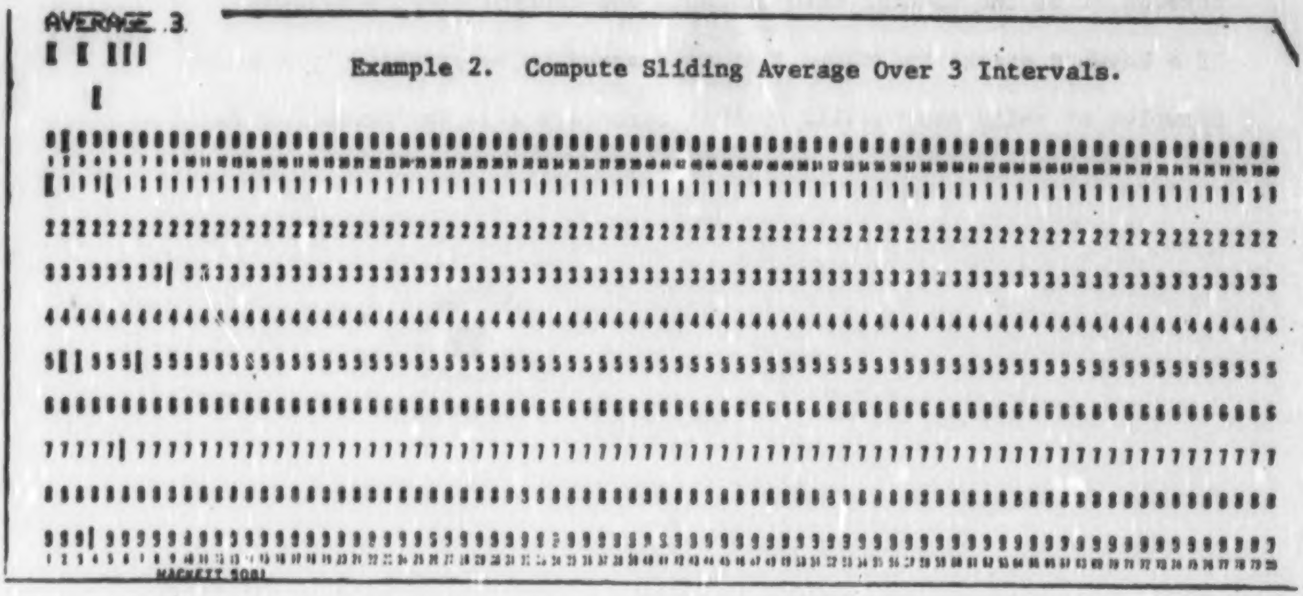
7.2.2 SLIDING AVERAGE PROGRAM INPUTS

The Sliding Average program has two inputs: the control card and the Sliding Average Answer file produced by the Retrieval program.

The Sliding Average program control card is used to specify the interval over which the sliding average is computed. The control card statement consists of three elements: a card identifier keyword, an optional clarifier keyword and the value of the interval in that order. The identifier keyword is AVERAGE. The optional clarifier keyword is INTERVAL. The value of the interval may be any value in the range of 2 to 31. The keywords must appear exactly as given and must be preceded and followed by at least one blank. The entire statement must occur in columns 1 through 72 of the control card and only one control card is allowed. If a keyword starts in column 1 it is assumed to be preceded by a blank. Examples of valid and invalid control cards are give in Figure 7.2.2.

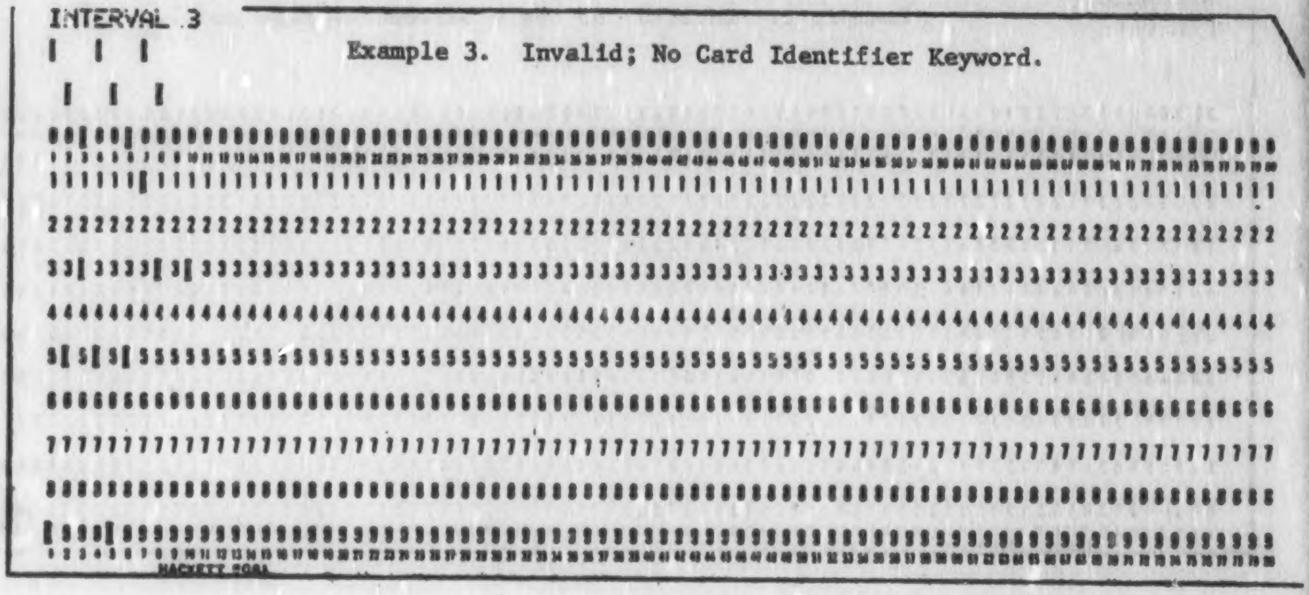


Example 1. Compute Sliding Average Over 24 Intervals.



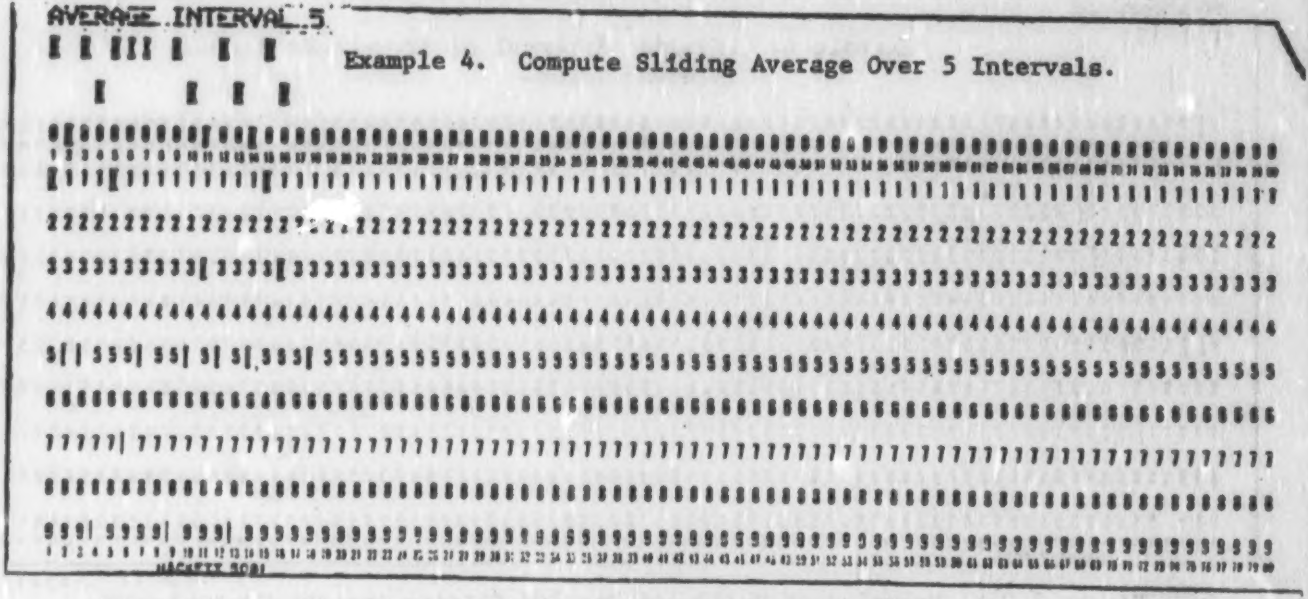
Example 2. Compute Sliding Average Over 3 Intervals.

Figure 7.2.2 Examples of Valid and Invalid Sliding Average Control Card Statements.



INTERVAL 3

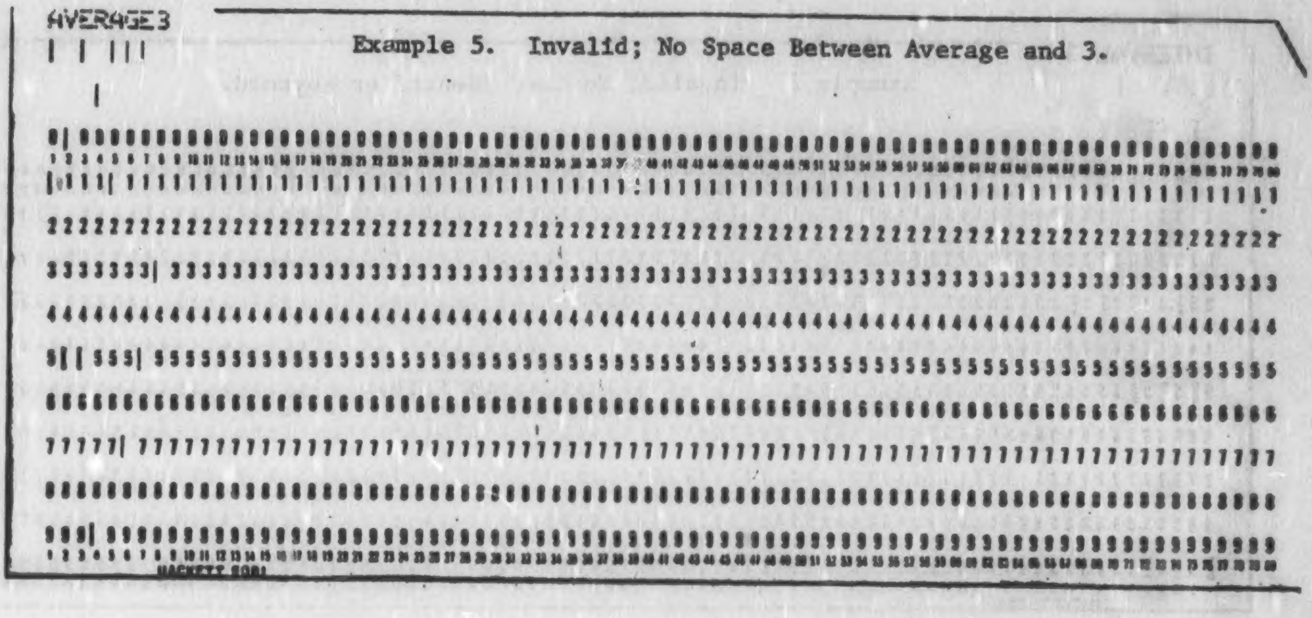
Example 3. Invalid; No Card Identifier Keyword.



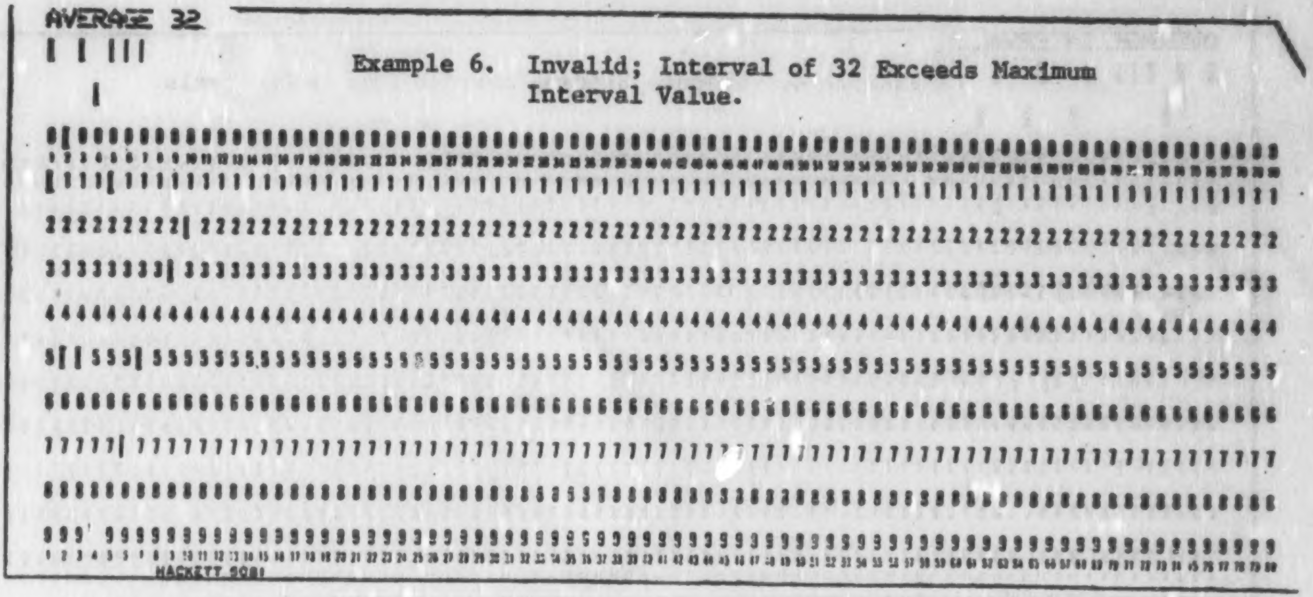
AVERAGE INTERVAL 5

Example 4. Compute Sliding Average Over 5 Intervals.

Figure 7.2.2 Examples of Valid and Invalid Sliding Average Control
(Continued) Card Statements.



Example 5. Invalid; No Space Between Average and 3.



Example 6. Invalid; Interval of 32 Exceeds Maximum Interval Value.

Figure 7.2.2 (Continued) Examples of Valid and Invalid Sliding Average Control Card Statements.

7.2.3 SLIDING AVERAGE PROGRAM OUTPUTS

The Sliding Average program produces a Sliding Average Values file for further processing by the Detail List program and a diagnostic message printout. The diagnostic message printout contains error and run status messages. The Sliding Average Values file contains records in Master File Record format except that the Readings are sliding average values.

7.3 DATA ANALYSIS

The Data Analysis program performs various statistical analyses on data contained in the AQDHS master file. The results of the calculations are written to the statistics file to be formatted by the Statistical List program.

The following statistical information is computed: minimum and maximum observations; arithmetic mean; standard deviation; geometric mean and standard deviation; percentage of readings present; and the 10th, 30th, 50th, 70th, 90th, 95th, 96th, 97th, 98th and 99th percentile occurrence.

The following statistics are used in this program (x represents a raw data value and n represent the number of values):

Arithmetic Mean:

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{x_1 + x_2 + \ldots + x_n}{n}$$

Arithmetic Standard Deviation:

$$\sigma = \left[\frac{\sum_{i=1}^{n} x_i^2 - \frac{\left(\sum_{i=1}^{n} x_i\right)^2}{n}}{n - 1} \right]^{1/2} =$$

$$\left[\frac{x_1^2 + x_2^2 + \ldots + x_n^2 - \frac{(x_1 + x_2 + \ldots x_n)^2}{n}}{n - 1} \right]^{1/2}$$

Geometric Mean:

$$\bar{x}_g = \text{Antilog}\left(\frac{\sum_{i=1}^{n} \log x_i}{n}\right) = \text{Antilog}\left(\frac{\log x_1 + \log x_2 + \ldots + \log x_n}{n}\right)$$

Geometric Standard Deviation:

$$\sigma_g = \text{Antilog}\left[\frac{\sum_{i=1}^{n} (\log x_i)^2 - \left(\frac{\sum_{i=1}^{n} \log x_i}{n}\right)^2}{n - 1}\right]^{1/2}$$

The files input to the Data Analysis program (AQDHS master file or answer file and the key portion of the parameter, method, unit, minimum detectable table) must be flagged by the File Flagging programs before being used by Data Analysis.

Composite data is not supported by this program.

The name of the load module is DXSTATIS.

7.3.1 ORGANIZATION

Although the Data Analysis program is written in FORTRAN IV rather than in COBOL, it is still organized in the same fashion as the other programs in AQDHS. The gross structure consists of an initialization segment, a main loop and a wrap-up or termination segment. The following subsegments are identified by the comments preceding them in the program source listing.

- Initialize the Sample Set - Before processing of a sample set begins, all accumulators are initialized to their nominal values.

- Initialize Minimum Detectable Table - This code is executed only once. It reads the key portion of the parameter, method, unit, minimum detectable table into an internal array for future reference by other program segments.

- Extract Parms for New Sample Set - This code saves the information necessary to identify the sample set.

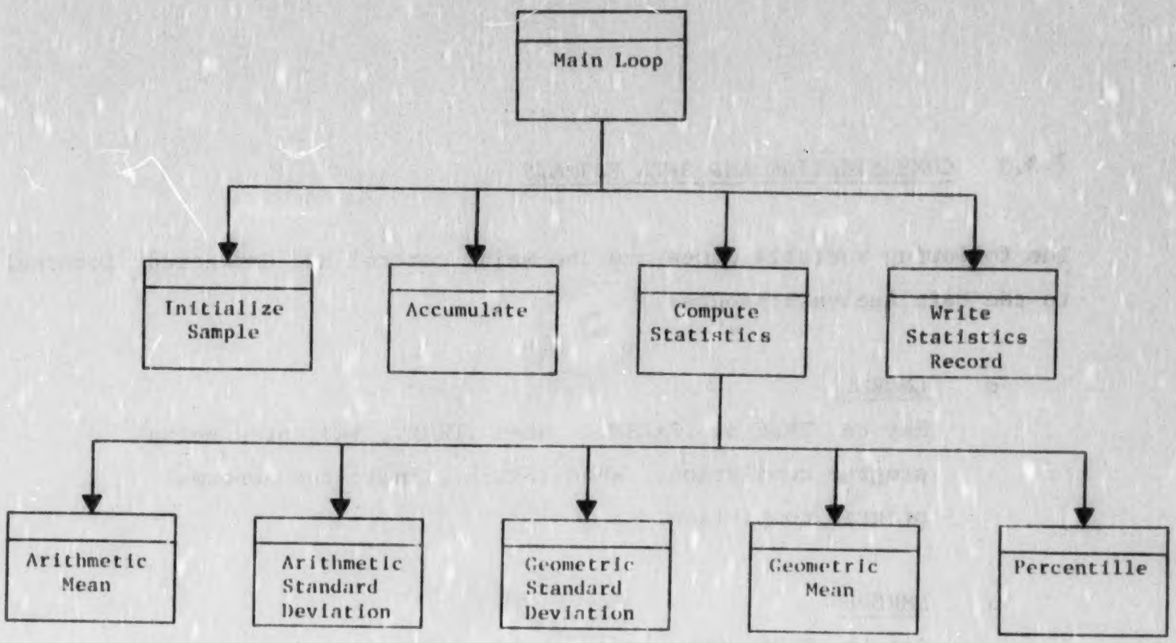
- Determine Minimum Detectable Value - The minimum detectable value array is searched until the current parameter code and unit code are matched and the associated minimum detectable value is extracted. If no match is found, the minimum detectable value is set equal to 1.0.

- Accumulator Loop - Accumulates intermediate internal results until a change in sample set (new state code, new parameter code, etc.) is detected. At the beginning of each loop, the date in the record is assumed to be the last date in the sample set and is saved. Any readings less than the minimum detectable value are substituted by half of the minimum detectable value.

- Compute Statistics - Computes and formats the beginning and end of the sample set; the minimum and maximum readings; the percentile distribution; the means and standard deviations; and the percentage of readings used in the calculations.

- Write Statistics Record - Formats the information based on the decimal position indicator and writes the record to the statistics file.

Figure 2.3.1 shows the organization of DXSTATIS.



DXSTATIS - Organization
Figure 7.3.1

7.3.2 COMMUNICATION AND DATA FORMATS

The following variable names are the major control and data areas internal to the Data Analysis program.

- LNORML
  May be .TRUE or .FALSE.. When .TRUE., indicates normal program completion. When .FALSE., indicates abnormal program completion.

- LMREOF
  Set to .TRUE. upon end-of-file on the copied master file.

- LMAINS
  Set to .FALSE. upon completion of all processing. Causes the program to leave the main loop and enter termination.

- LVFRST
  Set to .FALSE. to indicate that the minimum detectable value array has been built.

- LACCUM
  When .TRUE., indicates that processing and accumulation of the current sample set is to continue.

- NRDATA
  Array used to accumulate counts for calculating percentiles.

7.3.3 ROUTINES

There are no major internal subroutines in the Data Analysis program.

7.4 STATISTICAL LIST

This program accepts the statistics file generated by the Data Analysis program as its input and formats the information contained therein. There are no user options.

The name of the load module is SXPRINTS.

7.4.1 ORGANIZATION

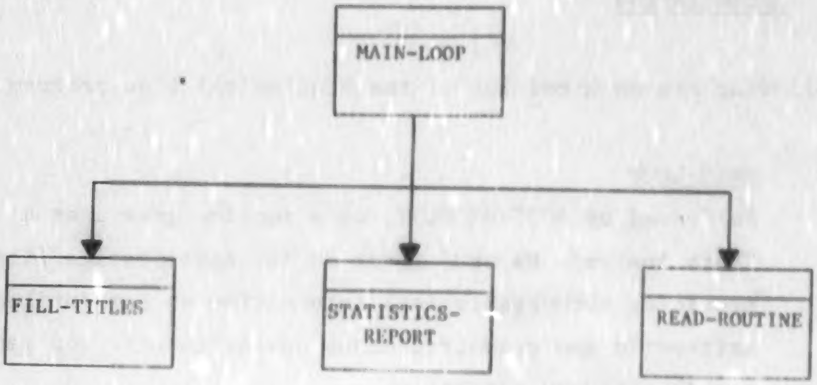
The following are main modules of the Statistical List program.

- **MAIN-LOOP**
  Performed by ROOT-SEGMENT, this routine generates a "Data Analysis Report" (from an input statistics file) providing such statistical information as percentiles, arithmetic and geometric means and arithmetic and geometric standard deviations.

- **STATISTICS-REPORT**
  Performed by MAIN-LOOP, this routine performs several lower level modules to actually format the report, (e.g., to set up and print headings) and to display it.

- **READ-ROUTINE**
  Performed by MAIN-LOOP, this routine reads the next record in the statistics file.

Figure 7.4.1 shows the organization of SXPRINTS.



SXPRINTS - Organization
Figure 7.4.1

7.4.2 COMMUNICATION AND DATA FORMATS

The following COBOL working storage section fields are the major control and data areas internal to the Statistical List program.

- END-OF-FILE-SW

  When equal to TRUE, indicates that an end-of-file has been detected on the input statistics file.

- RUN-ABORTED-SW

  When equal to TRUE, indicates that an error severe enough to cause the run to abort has been detected.

- PRINT-CONTROL-BLOCK

  Determines the format of the report listing.

7.4.3 ROUTINES

The following are internal subroutines of the Statistical List program.

- **FILL-TITLES**
  Completes skeletal headings with identifying information (e.g., agency, state, project, standards, etc.) so that they correctly identify the data in the report.

7.5 FILE FLAGGING

AQDHS supplies two programs to flag the input files used by the Data Analysis program. They flag the key portion of the parameter, method, unit, minimum detectable table and the master file or answer file to be analyzed. This flagging is required due to ANS FORTRAN restrictions.

7.5.1 ANSWER FILE FLAGGING

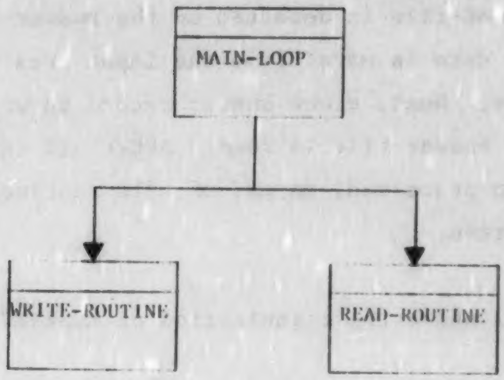
This program module copies the answer file and appends an end-of-file sentinel record.

The name of the load module is MXSENTNL.

7.5.1.1 ORGANIZATION

- **MAIN-LOOP**
  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the answer file. First, the data is moved from the input area to the output area. Next, a new answer record is written and the old answer file is read. After all the input has been processed, an end-of-file sentinel record is written.

Figure 7.5.1.1 shows the organization of MXSENTNL.



MXSENTNL - Organization
Figure 7.5.1.1

7.5.1.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW
  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- SENTINEL-CHARS
  An area of all nines which will form part of the sentinel record.

7.5.1.3 ROUTINES

The following are major subroutines of the AQDHS Data Analysis Copy program module.

- **READ-ROUTINE**
  This routine reads an answer file record.

- **WRITE-ROUTINE**
  This routine writes an answer file record.

7.5.2 PARM-CODE-KEY FILE FLAGGING

This program module copies the Parm-Code-Key file and appends an end-of-file sentinel record.

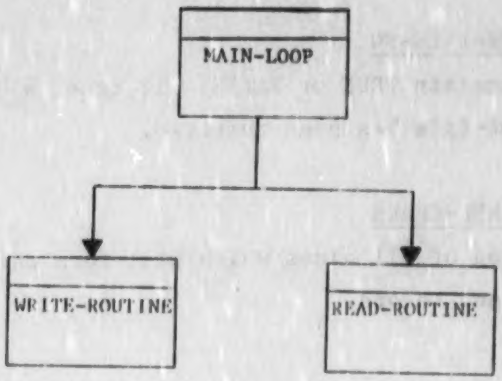
The name of the load module is NXSENTNL.

7.5.2.1 ORGANIZATION

- **MAIN-LOOP**

  This routine is performed by ROOT-SEGMENT until an end-of-file is detected on the Parm-Code-Key File. First, the data is moved from the input area to the output area. Next, a new Parm Code record is written and the next Parm-Code-Key file record is read. After all the input has been processed, an end-of-file sentinel record is written.

Figure 7.5.2.1 shows the organization of NXSENTNL.



NXSENTNL - Organization
Figure 7.5.2.1

7.5.2.2 COMMUNICATION AND DATA FORMATS

The following defines the usage of certain working storage names:

- END-OF-FILE-SW

  May contain TRUE or FALSE. If true, a data set end-of-file has been detected.

- SENTINEL-CHARS

  An area of all nines which will form part of the sentinel record.

7.5.2.3 ROUTINES

The following are major subroutines of the AQDHS Data Analysis Copy program module.

- **READ-ROUTINE**
  This routine reads a Parm-Code-Key file record.

- **WRITE-ROUTINE**
  This routine writes a Parm-Code-Flag file record.

7.6 TABLE LIST PROGRAMS

AQDHS-II supplies three programs to list the auxiliary tables most essential to the system - the parameter standards, the site code, and the parameter method-unit code tables. The names of the load modules are, respectively, PXPRMSTD, PXSITE, and PXMETHOD. Descriptions of these programs follow.

7.6.1 PARAMETER METHOD - UNIT CODE PRINT PROGRAM

PDMETHOD is a program used to print the parameter method - unit code table in a columnized format which includes headings and a footnote feature. The method - unit code key file and corresponding description file are alternately read, in that order, to produce two detail lines, with an implicit one-to-one relationship between the two files being assumed.

Refer to Figure 7.6.1.1-1 for a sample run and Figure 7.6.1.1-2 for sample output.

The name of the load module is PXMETHOD.

7.6.1.1 ORGANIZATION

PGM-INIT

This routine opens all files, initializes the end-of-file switch to '0' (indicating the end of the file has not yet been reached), prints the normal update messages, and initializes one of the page headings. Then the first record is read from each file, counters of total input records and input records from each file are incremented, the first page and footnote are initialized, and the first parameter method - unit code table entry is printed thru performing PRT-REC.

MAIN-LOOP

Each file, the method - unit code key file and corresponding description file, is alternately read, in that order, until the end-of-file is reached for one of the files. From the key record and description record, two detail lines containing the table entry are printed by performing PRT-REC.

PRT-REC

First, a check is made to see if 53 detail lines have been printed on the current page. If so, the footnote for that page is printed, and the next page and footnote are initialized. The table entry fields are moved to the corresponding fields on the first detail line, which is then printed. The first detail line contains all the key information and the first half of the description. The counters of detail lines printed on the current page and of table entries printed out are incremented. A second detail line is then printed, containing only the second half of the description indented to line up under the first half. This time, only the detail line counter is incremented.

WRAP-UP

After spacing ahead to the appropriate line on the page, the last footnote is printed. The four ending messages displaying the input and output counters are then printed on a separate page, the files closed, and the run is terminated.

SAMPLE JCL TO PRINT THE PARAMETER METHOD-UNIT CODE TABLE

```
//Valid Job Card Goes Here
//STEP1  EXEC  AQSPMETH,
//             KEYFIL=HTPRM1AB,
//             DESCFIL=HTPRM2AB
```

Figure 7.6.1.1-1

```
PROGRAM-NAME: PDMETHOD
REVISION LEVEL:  1-00
LAST UPDATE #: 18 (VERSION 2)
INCORPORATED:  DECEMBER 15, 1976
```

SAMPLE OUTPUT

Figure 7.6.1.1-2

```
                                        PARAMETER CODE DESCRIPTION TABLE                                              PAGE    1
 **                        K E Y                            **     **                  DESCRIPTION                    **
PARM-CODE  METHOD-CODE  UNITS-CODE  MIN-DET  DEC-POSITION
-------------------------------------------------------------------------------------------------------------------------------

  11101        91           01        0001        0           TOTAL SUSPENDED PARTICULATE   HI-VOL
                                                              GRAVIMETRIC              U-GMS/M3 (25DEG C,1013 M-BARS)
  11101        92           02        0011        1           TOTAL SUSPENDED PARTICULATE   MEMBRANE SAMPLE
                                                              GRAVIMETRIC              U-GMS/M3 (ODEG C, 1013 M-BARS)
  11201        81           09        0001        2           SOILING INDEX (COH/1000LF)    TAPE SAMPLER
                                                              TRANSMITTANCE            COHS/1000 LINEAR FEET
  11202        91           10        0001        2           SOILING INDEX (RUD/10000LF)   TAPE SAMPLER
                                                              REFLECTANCE              RUDS/10,000 LINEAR FEET
  14101        11           07        0002        1           TOTAL HYDROCARBONS            INSTRUMENTAL
                                                              FLAME IONIZATION         PARTS PER MILLION
  21101        51           90        0143        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC              TONS/SQUARE MILE-MONTH
  21101        51           91        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC              M-GMS/SQUARE CENTIMETER-MONTH
  21101        51           99        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC              M-GMS/SQ. CENTIMETER-30 DAYS
  21101        71           90        0143        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (APCA)       TONS/SQUARE MILE-MONTH
  21101        71           91        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (APCA)       M-GMS/SQUARE CENTIMETER-MONTH
  21101        71           99        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (APCA)       M-GMS/SQ. CENTIMETER-30 DAYS
  21101        81           90        0143        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (ASTM)       TONS/SQUARE MILE-MONTH
  21101        81           91        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (ASTM)       M-GMS/SQUARE CENTIMETER-MONTH
  21101        81           99        0005        2           TOTAL SETTLED PARTICULATE     BUCKET; JAR
                                                              GRAVIMETRIC (ASTM)       M-GMS/SQ. CENTIMETER-30 DAYS
  42101        11           05        0575        3           CARBON MONOXIDE               INSTRUMENTAL
                                                              NONDISPERSIVE INFRA-RED  M-GMS/M3 (25DEG C,1013 M-BARS)
  42101        11           06        0628        3           CARBON MONOXIDE               INSTRUMENTAL
                                                              NONDISPERSIVE INFRA-RED  M-GMS/M3 (ODEG C, 1013 M-BARS)
  42101        11           07        0004        1           CARBON MONOXIDE               INSTRUMENTAL
                                                              NONDISPERSIVE INFRA-RED  PARTS PER MILLION (VOL/VOL)
  42101        12           07        0004        1           CARBON MONOXIDE               INSTRUMENTAL
                                                              COULOMETRIC              PARTS PER MILLION (VOL/VOL)
  42101        21           05        0063        2           CARBON MONOXIDE               INSTRUMENTAL
                                                              FLAME IONIZATION         M-GMS/M3 (25DEG C,1013 M-BARS)
  42101        21           07        0004        1           CARBON MONOXIDE               INSTRUMENTAL
                                                              FLAME IONIZATION         PARTS PER MILLION (VOL/VOL)
  42102        11           05        0018        1           CARBON DIOXIDE                INSTRUMENTAL
                                                              INFARARED ABSORPTION     M-GMS/M3 (25DEG C,1013 M-BARS)
  42102        11           07        0001        0           CARBON DIOXIDE                INSTRUMENTAL
                                                              INFARARED ABSORPTION     PARTS PER MILLION (VOL/VOL)
  42102        91           05        0018        1           CARBON DIOXIDE                GAS BUBBLER
                                                              PHENOLPHTHALEIN          M-GMS/M3 (25DEG C,1013 M-BARS)
  42102        91           07        0001        0           CARBON DIOXIDE                GAS BUBBLER
                                                              PHENOLPHTHALEIN          PARTS PER MILLION (VOL/VOL)
  42401        11           02        0286        1           SULFUR DIOXIDE                INSTRUMENTAL
                                                              WEST-GAEKE COLORIMETRIC  U-GMS/M3 (ODEG C, 1013 M-BARS)

                              PARM-CODE: 11101* METHOD: 91* UNITS-CODE: 01* MIN-DET:  0001* DEC-POS: 0**            PAGE    1
```

Figure 7.6.1.1-2(Continued)

```
PARM-METHOD-UNIT-KEYS-READ                        96
PARM-METHOD-UNIT-DESCRIPTION-RECORDS-READ         96
TOTAL-RECORDS-READ                               192
PARM-METHOD-UNIT-TABLE-ENTRIES-PRINTED            96
```

Figure 7.6.1.1-2 (Continued)

7.6.1.2 PXMETHOD COMPLETION

The following messages are printed upon normal completion of PXMETHOD:

```
PARM-METHOD-UNIT-KEYS-READ                          xxxxxx

PARM-METHOD-UNIT-DESCRIPTION-RECORDS-READ           yyyyyy

TOTAL-RECORDS-READ                                  zzzzz

PARM-METHOD-UNIT-TABLE-ENTRIES-PRINTED              qqqqqq,
```

where xxxxxx, yyyyyy, zzzzzz, qqqqqq represent the applicable counters.

7.6.2 SITE CODE PRINT PROGRAM

PDSITE is a program to print the site code table in a columnized format which includes headings and a footnote feature. This table is contained on an input file.

Refer to Figure 7.6.2.1-1 for a sample run and Figure 7.6.2.1-2 for sample output.

The name of the load module is PXSITE.

7.6.2.1 ORGANIZATION

PGM-INIT

The input table and output print files are opened, the end-of-file switch is set to '0' since all records in the file have not been read, the normal update messages are printed, and one of the page headings is initialized. The first table entry is then read off the site code table, and the input record counter is incremented. After the first page and footnote are initialized, the detail line containing the first table entry is printed by performing PRT-REC.

MAIN-LOOP

The site code table file is read, and the input record counter incremented, until end-of-file is reached. Each table entry is printed on a detail line by performing PRT-REC.

PRT-REC

A check is made of the line-count for the current page. If the count indicates the current page contains 55 detail lines, the footnote for the current page is printed, and the next page and footnote for that page are initialized. The table entry fields are then moved into the corresponding print fields on the detail line. The detail line is printed out, and the counters of table entries printed and of lines on the current page are incremented.

WRAP-UP

After spacing ahead to the appropriate line on the page, the last footnote is written out. The two ending messages displaying the input and output counters are then printed on a separate page. The files are then closed, and the run is terminated.

SAMPLE JCL FOR PRINTING THE SITE CODE TABLE

```
//Valid Job Card Goes Here
//STEP1   EXEC AQSPSITE,
//              SITEFIL=HTSITEAA
```

Figure 7.6.2.1-1

```
PROGRAM-NAME: PDSITE
REVISION LEVEL: 1-00
LAST UPDATE #: 18 (VERSION 2)
INCORPORATED: DECEMBER 15, 1976
```

SAMPLE OUTPUT

Figure 7.6.2.1-2

```
**              K E Y             **     **                          DESCRIPTION                             **
STATE   AREA   SITE   AGENCY   PROJECT
----------------------------------------------------------------------------------------------------------------------

 10     0001    001      E        02      STATE = 10 (FLORIDA)  AREA CODE = 0001  SITE CODE = 001...
 12     0001    001      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 001....
 12     0001    002      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 002....
 12     0001    003      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 003....
 12     0001    004      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 004....
 12     0001    005      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 005....
 12     0001    006      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 006....
 12     0001    007      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 007....
 12     0001    008      C        01      STATE = 12 (HAWAII)  AREA CODE = 0001  SITE CODE = 008....
 20     0001    004      B        03      STATE = 20 (MAINE)  AREA CODE = 0001  SITE CODE = 004.....
 34     0001    001      A        06      STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 001...
 34     0001    002      A        06      STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 002...
 34     0001    003      A        06      STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 003...
 34     0001    004      A        06      STATE = 34 (N. CAR.)  AREA CODE = 0001  SITE CODE = 004...
 34     0002    001      D        05      STATE = 34 (N. CAR.)  AREA CODE = 0002  SITE CODE = 001...
 34     0002    003      D        05      STATE = 34 (N. CAR.)  AREA CODE = 0002  SITE CODE = 003...
 34     0002    005      D        05      STATE = 34 (N. CAR.)  AREA CODE = 0002  SITE CODE = 005...
 34     0002    007      D        05      STATE = 34 (N. CAR.)  AREA CODE = 0002  SITE CODE = 007...
 34     0003    002      G        04      STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 002...
 34     0003    004      G        04      STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 004...
 34     0003    006      G        04      STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 006...
 34     0003    008      G        04      STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 008...
 34     0003    010      G        04      STATE = 34 (N. CAR.)  AREA CODE = 0003  SITE CODE = 010...
 37     0001    234      F        05      STATE = 37 (OKLAHOMA)  AREA CODE = 0001  SITE CODE = 234..
```

Figure 7.6.2.1-2 (Continued)

```
STATE: 10* AREA: 0001* SITE: 001* AGENCY: E* PROJECT: 02**     PAG
```

```
SITE-CODE-RECORDS-READ          24
SITE-CODE-RECORDS-PRINTED       24
```

Figure 7.6.2.1-2 (Continued)

7.6.2.2 PXSITE COMPLETION

The following messages are printed upon normal completion of PXSITE:

```
SITE-CODE-RECORDS-READ                      xxxxx

SITE-CODE-RECORDS-PRINTED                   zzzzz,
```

where xxxxx, zzzzz represent the appropriate counters.

7.6.3 PARAMETER STANDARDS PRINT PROGRAM

PDPRMSTD is a program that reads the parameter standards table entries from a file and then prints these entries in a columnized format which includes headings and a footnote feature.

Refer to Figure 7.6.3.1-1 for a sample run and Figure 7.6.3.1-2 for sample output.

The name of the load module is PXPRMSTD.

7.6.3.1. ORGANIZATION

PGM-INIT

The input standards file and output print file are opened, the end-of-file switch is initialized to '0' to indicate all records in the file have not been read, the update messages are printed, and one of the page headings is initialized. The first record on the parameter standards file is read, and the input record counter is incremented. The first page and footnote are initialized, and the first table entry is printed by performing the PRT-REC routine.

MAIN-LOOP

The parameter standards table file is read, and the input record counter incremented, until end-of-file is reached. A detail line is printed for each entry by performing PRT-REC.

PRT-REC

If the line-count for the current page is greater than 52, the footnote for the current page is printed, and a new page and its footnote are initialized. The table entry fields are moved to the appropriate print fields and the detail line printed. The counters of table entries printed and of detail lines printed on the current page are incremented.

WRAP-UP

After spacing ahead to the appropriate place on the page, the last footnote is printed. The two ending messages are then printed on a new page, the files closed, and the run is terminated.

SAMPLE JCL FOR PRINTING THE PARAMETER STANDARDS TABLE

```
//Valid Job Card Goes Here
//STEP1   EXEC AQSPSTDS,
//        PRMSTDS=HTSTNDAB
```

Figure 7.6.3.1-1

```
PROGRAM-NAME: POPRMSTD
REVISION LEVEL:  1-00
LAST UPDATE #: 18 (VERSION 2)
INCORPORATED:  DECEMBER 15, 1976
```

SAMPLE OUTPUT

Figure 7.6.3.1-2

```
                                              PARAMETER STANDARDS TABLE                                                         PAGE
**          K E Y         **        **UNIT                        DESCRIPTION                        **
PARM-CODE  STATE   STD-NBR
-------------------------------------------------------------------------------------------------------------------------------------

  11101      F       01          01         75 UG/M3 (25 C) ANNUAL GEOMETRIC MEAN
                                 01         60 UG/M3 (25 C) ANNUAL GEOMETRIC MEAN
  11101      F       02          02         75 UG/M3 (0 C) ANNUAL GEOMETRIC MEAN
                                 02         60 UG/M3 (0 C) ANNUAL GEOMETRIC MEAN
  11101      F       03          01        260 UG/M3 (25 C) 24 HOUR MAXIMUM, 1 PER YEAR.
                                 01        150 UG/M3 (25 C) 24 HOUR MAXIMUM, 1 PER YEAR.
  11101      F       04          02        260 UG/M3 (0 C)  24 HOUR MAXIMUM, 1 PER YEAR.
                                 02        150 UG/M3 (0 C)  24 HOUR MAXIMUM, 1 PER YEAR.
  42101      F       01          01     10,000 UG/M3 (25 C)   9 PPM  8 HR. MAX, 1 PER YR.
                                 01     40,000 UG/M3 (25 C)  35 PPM  1 HR. MAX, 1 PER YR.
  42101      F       02          02     10,000 UG/M3 (0 C)    9 PPM  8 HR. MAX, 1 PER YR.
                                 02     40,000 UG/M3 (0 C)   35 PPM  1 HR. MAX, 1 PER YR.
  42401      F       01          01        365 UG/M3 (25 C) .14 PPM  24 HR. MAX, 1 PER YR.
                                 01        260 UG/M3 (25 C) .1  PPM  24 HR. MAX, 1 PER YR.
  42401      F       02          02        365 UG/M3 (0 C)  .14 PPM  24 HR. MAX, 1 PER YR.
                                 02        260 UG/M3 (0 C)  .1  PPM  24 HR. MAX, 1 PER YR.
  42401      F       03          01         80 UG/M3 (25 C) .03 PPM ANNUAL ARITHMETIC MEAN
                                 01         60 UG/M3 (25 C) .02 PPM ANNUAL ARITHMETIC MEAN
  42401      F       04          02         80 UG/M3 (0 C)  .03 PPM ANNUAL ARITHMETIC MEAN
                                 02         60 UG/M3 (0 C)  .02 PPM ANNUAL ARITHMETIC MEAN
  42401      F       05
                                 01       1300 UG/M3 (25 C) .5  PPM  3 HR. MAX, 1 PER YR.
  42401      F       06
                                 02       1300 UG/M3 (0 C)  .5  PPM  3 HR. MAX, 1 PER YR.
  42602      F       01          01        100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN
                                 01        100 UG/M3 (25 C) .05 PPM ANNUAL ARITHMETIC MEAN
  42602      F       02          02        100 UG/M3 (0 C)  .05 PPM ANNUAL ARITHMETIC MEAN
                                 02        100 UG/M3 (0 C)  .05 PPM ANNUAL ARITHMETIC MEAN
  43101      F       01          01        160 UG/M3 (25 C) 3 HOUR MAXIMUM, 1 PER YEAR.
                                 01        160 UG/M3 (25 C) 3 HOUR MAXIMUM, 1 PER YEAR.
  43101      F       02          02        160 UG/M3 (0 C)  3 HOUR MAXIMUM, 1 PER YEAR.
                                 02        160 UG/M3 (0 C)  3 HOUR MAXIMUM, 1 PER YEAR.
  44101      F       01          01        160 UG/M3 (25 C) .08 PPM  1 HR. MAX, 1 PER YR.
                                 01        160 UG/M3 (25 C) .08 PPM  1 HR. MAX, 1 PER YR.
  44101      F       02          02        160 UG/M3 (0 C)  .08 PPM  1 HR. MAX, 1 PER YR.
                                 02        160 UG/M3 (0 C)  .08 PPM  1 HR. MAX, 1 PER YR.
```

Figure 7.6.3.1-2(Continued)

```
                                                          PARM-CODE: 11101* STATE: F** STD-NBR: 01**    PAGE
```

```
PARM-STANDARDS-RECORDS-READ          18
PARM-STANDARDS-RECORDS-PRINTED       18
```

Figure 7.6.3.1-2 (Continued)

7.6.3.2 PXPRMSTD COMPLETION

The following messages are printed out upon normal completion of PXPRMSTD:

```
PARM-STANDARDS-RECORDS-READ              xxxxxx

PARM-STANDARDS-RECORDS-PRINTED           yyyyyy,
```

where xxxxxx, yyyyyy represent the appropriate count values.

8.0 FILE MERGING

AQDHS-II provides a file merging program to merge two distinct AQDHS-II master files into a single AQDHS-II master file. This program provides to the user the capability to archive old data, thus reduce the size of his working AQDHS-II master file and his operating expense.

8.1 FILE MERGE PROGRAM

The FILE MERGE program creates a new AQDHS-II master file from two distinct AQDHS-II master files. The two files which are to be merged can not have any records with the same key.

Refer to Figure 8.1.3-1 for sample run.

The name of the load module is AXMERGE.

8.1.1 ORGANIZATION

- MAIN-LOOP

  This routine is performed by MAIN-LINE until an end-of-file is detected on both input files. The appropriate record from input file one or input file two is moved to the output buffer. Then the record is written and a new record is read from either input file one or input file two.

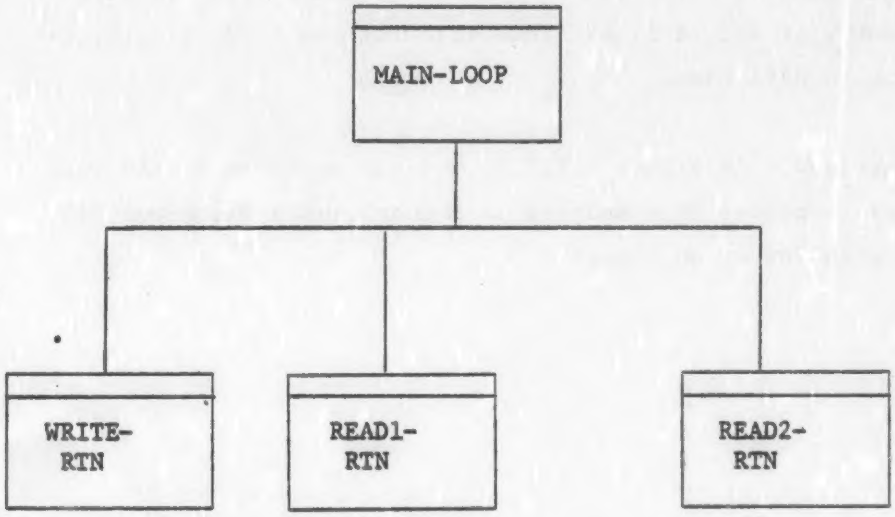


Figure 8.1.1-1. Shows the organization of AXMERGE.

8.1.2 FILE ARCHIVING

In order to reduce your operating expenses we suggest that you split your AQDHS-II master file into a working file and an archived file. This will reduce your file size and thus reduce the run time of most of your programs. At the end of each year you can then archive your oldest year of data and merge this with your archived file using program AXMERGE. AXMERGE also will allow you to merge two distinct master files (i.e., two AQDHS-II master or answer files) thus allowing you to do statistical work on your entire data base.

By using the retrievals in Figure 8.1.2.1, you can split your file into a working master (a master file subject to change) and an archived file (a master file with few or no changes).

Retrieval to create an archived file of 1973 and older data:

COL 1-22	COL 24	COL 26	COL 28-67	COL 69-71
SUBJECT NAME	NEGATION FLAG	RELATIONAL OPERATOR	OBJECT NAME	BOOLEAN OPERATOR
$$SELECT				
YEAR		<	'74'	
$$END				

Retrieval to create a working master file of 1974 and newer data:

COL 1-22	COL 24	COL 26	COL 28-67	COL 69-71
SUBJECT NAME	NEGATION FLAG	RELATIONAL OPERATOR	OBJECT NAME	BOOLEAN OPERATOR
$$SELECT				
YEAR		>	'73'	
$$END				

Figure 8.1.2-1

In order to retain the answer files as master files you need to catalog the answer file.

The following is an example:

```
//  EXEC AQSRETVR,
//        MSTRFIL=OLDMSTR,
//        ANSWRFL=MSTRB74,
//        DISP='NEW,CATLG,DELETE'
//COMPILE.INPUT DD *
        see figure 8.1.2-1 for the appropriate retrieval
        statements to archive 1973 and older data
/*
//
```

The following is another example:

```
// EXEC AQSRETVR,
//      MSTRFIL=OLDMSTR,
//      ANSWRFL=MSTRA73,
//COMPILE.INPUT DD *
        see figure 8.1.2-1 for the appropriate retrieval
        statements to create a working master for 1974 and
        newer data
/*
//
```

8.1.3 SAMPLE MERGE

RUNS

In order to merge two distinct files it is necessary only to invoke the cataloged procedure AQSMERGE and name the two files to be merged and the name of the new master file.

Refer to Figure 8.1.3-1.

```
//*
//* TEST 17- ARCHIVE A MASTER & CREATE A WORKING MASTER
//* THEN MERGE THE TWO BACK INTO ONE FILE
//*
//SCRATCH EXEC PGM=IEHPROGM,
//             REGION=60K,
//             TIME=(1,0)
//SYSPRINT  DD SYSOUT=A
//PACK      DD UNIT=3330,
//             VOLUME=(PRIVATE,RETAIN,SER=CDHSPK),
//             DISP=OLD
//SYSIN     DD *
 SCRATCH VOL=3330=CDHSPK,DSNAME=CNA087.LMH.CDHS.LRM.AQS.DATA.RTANSR15
 SCRATCH VOL=3330=CDHSPK,DSNAME=CNA087.LMH.CDHS.LRM.AQS.DATA.RTANSR16
 SCRATCH VOL=3330=CDHSPK,DSNAME=CNA087.LMH.CDHS.LRM.AQS.DATA.FTMSTRAF
 UNCATLG VOL=3330=CDHSPK,DSNAME=CNA087.LMH.CDHS.LRM.AQS.DATA.FTMSTRAF
//TEST8A  EXEC AQSRETVR,
// PROJECT='CNA087.LMH.CDHS.LRM.AQS',
//             MSTRFIL=FTMSTRAE,
//             ANSWRFL=RTANSR15
//COMPILE.INPUT  DD *
$$SELECT
YEAR                    > '71'
$$END
/*
//TEST8B  EXEC AQSRETVR,
// PROJECT='CNA087.LMH.CDHS.LRM.AQS',
//             MSTRFIL=FTMSTRAE,
//             ANSWRFL=RTANSR16
//COMPILE.INPUT  DD *
$$SELECT
YEAR                    < '72'
$$END
/*
//MERGE EXEC AQSMERGE,
//           INFILE1=RTANSR15,
//           INFILE2=RTANSR16,
//           NEWMSTR=FTMSTRAF
//PRINT1   EXEC AQSELIST,
//       PROJECT='CNA087.LMH.CDHS.LRM.AQS',
//              MSTRFIL=FTMSTRAE
//PRINT2   EXEC AQSELIST,
//       PROJECT='CNA087.LMH.CDHS.LRM.AQS',
//              MSTRFIL=FTMSTRAF
```

Figure 8.1.3-1

8.1.4 AXMERGE MESSAGES

NORMAL COMPLETION

The following message is printed upon normal completion of AXMERGE:

```
AXMERGE . . . . . . . . . . . . . . FILE MERGE PROGRAM


INPUT FILE 1 CONTAINS xxxx RECORDS
INPUT FILE 2 CONTAINS mmmm RECORDS
OUTPUT FILE CONTAINS nnnn RECORDS
```

ABNORMAL COMPLETION

The following message is printed upon abnormal completion of AXMERGE:

```
IDENT-KEY= xxxx IS FOUND ON BOTH FILES... RUN TERMINATED....
MERGE FAILED.....
```

Appendix A - CODE TABLES

Agency Codes 147
Project Codes 148
Time Codes 149
Unit Codes 150

Agency Codes

Code	Agency
A	EPA group responsible for atmospheric surveillance
B	EPA group responsible for meteorological activity
C	EPA group responsible for effects research
D	EPA group responsible for atmospheric research
E	EPA group responsible for abatement activity
F	State agency
G	County agency
H	City agency
I	District agency
J	Private
K	Institution (university, college, etc.)
L	Military
M	International agency
N	Other Federal nonmilitary agencies
O-Y	Open for future expansion
Z	Other

Agency Codes
Table 1

Project Codes

Long-term Surveillance

Code Project
01.......Population-oriented surveillance
02.......Source-oriented ambient surveillance
03.......Background surveillance

Short-term Surveillance

Code Project
04.......Complaint investigation
05.......Special studies
06.......Episode monitoring

Project Codes

Table 2

Time Codes

Format 1 Transaction

Code	Interval
1	1 hour
2	2 hours
3	3 hours
4	4 hours
5	6 hours
6	8 hours
7	12 hours

Format 2 and 3 Transactions

Code	Interval
8	1 day
9	1 week
A	1 month
B	1 quarter
C	Composite data (Format 2 only)

Time Codes
Table 3

Unit Codes

Code	Units
01	micrograms/cubic meter (25° C, 1013 millibars)
02	micrograms/cubic meter (0° C, 1013 millibars)
03	nanograms/cubic meter (25° C, 1013 millibars
04	nanograms/cubic meter (0° C, 1013 millibars)
05	milligrams/cubic meter (25° C, 1013 millibars)
06	milligrams/cubic meter (0° C, 1013 millibars)
07	parts per million (volume/volume)
08	parts per billion (volume/volume)
09	COHS/1000 linear feet
10	RUDS/10,000 linear feet
11	meters/second
12	miles/hour
13	knots
14	degrees
20	microns
30	picocuries/cubic meter
31	microcuries/cubic meter
32	picocuries/square meter
33	microcuries/square meter
34	picocuries/cubic centimeter
35	picocuries/gram
50	number of threshold levels
70	milligrams F/100 square centimeters-day
80	milligrams SO_3/100 square centimeters-day
81	micrograms SO_2/square meter-day
90	tons/square mile-month[a]
91	milligrams/square centimeter-month[a]
92	micrograms/cubic meter-month[a]
98	milligrams SO_4^{2-}/square centimeters-30 days
99	milligrams/square centimeters-30 days

---

[a] On a calendar-month basis.

Unit Codes

Table 4

Appendix B - AQDHS DIAGNOSTIC MESSAGES

AQDHS DIAGNOSTIC MESSAGES

Most diagnostic messages from AQDHS are self-explanatory. However, some messages refer the user to this document for further explanation. The message, with their explanation, are listed below.

*** WARNING: PARM TABLE OVERFLOW. CONSULT USER GUIDE FOR CORRECTIVE ACTION.

AQDHS currently has a built-in limit of 100 entries in the parameter, method, unit codes, minimum detectable table. This restriction is included to limit the amount of core utilized. If this message should ever appear, the limit has been exceeded. It is possible to increase the limit but only at the expense of using additional core. The following programs must be modified:

Parameter Code Table Maintenance
Transaction Editor
Detail List
Data Analysis
Statistical List

Refer to Appendix C for further instructions on accomplishing these changes.

*** WARNING: SITE TABLE OVERFLOW. CONSULT USER GUIDE FOR CORRECTIVE ACTION.

AQDHS currently has a built-in limit of 100 entries in the valid site code table. This restriction is included to limit the amount of core utilized. If this message should ever appear, the limit has been exceeded. It is possible to increase the limit but only at the expense of using additional core. The following programs must be modified:

Site Code Table Maintenance

Transaction Editor

Detail List

Statistical List

Refer to Appendix C for further instructions on accomplishing these changes.

*** WARNING: STANDARDS TABLE OVERFLOW. CONSULT USER GUIDE FOR CORRECTIVE ACTION.

AQDHS-II currently has a built in limit of 50 entries in the parameter standards table. This restriction is included to limit the amount of core utilized. If this message should ever appear, the limit has been exceeded. It is possible to increase the limit but only at the expense of using additional core. The following programs must be modified:

Parameter Standards Table Maintenance

Detail List

Statistical List

Refer to Appendix C for further instructions on accomplishing these changes.

EXRPTLST

The following are the diagnostic messages which may be generated by the Detail List Program.

Message:

RPT001S ANSWER FILE CONTAINS NO DATA-RUN ABORTED

Meaning: There were no records in the primary input file, possibly because the retrieval request was overly restrictive and no records qualified.

Action: Examine your retrieval request and rerun the job, if necessary.

Message:

RPT002S STATEMENT IS NOT RECOGNIZED-RUN ABORTED

Meaning: The statement identifier is not the first word in the statement, is misspelled or missing. Valid identifiers are DISPLAY, MEAN and SUM.

Action: Correct the control card and resubmit the job

Message:

RPT003W CONTROL CARD MISSING FOR STD ANSWER FILE-ASSUMING MEAN REPORT

Meaning: No control card defining the type of report was specified. Therefore the "MEAN" rather than the "SUM" option will be used to prepare the report.

Action: If the "SUM" option is desired, enter a transaction with "SUM" on the control card and resubmit the job.

Message:

RPT004S SYNTAX REQUIRES RELATIONAL OP (<, =, >)-RUN ABORTED

Meaning: The relational operator is missing, improperly coded or out of sequence in a display statement. The report is not produced.

Action: Check the display statement for correct format and syntax. Correct the error and resubmit.

Message:

RPT005S SUPPRESS NULL READING INVALID USE OF DISPLAY STMT-RUN ABORTED

Meaning: The Display statement logic will cause all valid readings to be suppressed. For example the statement:

DISPLAY READINGS N < 9999

is invalid.

Action: Correct the display statement and resubmit the job.

Message:

RPT007S SYNTAX REQUIRES NEGATION SYMBOL (N) OR BLANK-RUN ABORTED

Meaning: The "not" is misplaced or keypunched as one or more non-blank characters. The report is not produced.

Action: Correct the error and resubmit the job.

Message:

RPT008S SYNTAX ERROR-RUN ABORTED

Meaning: The control card contains one or more words not recognized as the correct form for a DISPLAY, MEAN or SUM statement. The report is not produced.

Action: Correct the control card and rerun the job.

Message:

RPT009S DISPLAY STMT PARAMETER NOT NUMERIC-RUN ABORTED

Meaning: The threshold used in a Display statement must be a number in the range of 0 to 9997; leading digits are not required. The report is not produced.

Action: If a display option is desired, input a transaction with a numeric threshold and resubmit the job.

Message:

RPT010S MEAN STMT MAY NOT BE USED WITH SLIDING AVERAGE INPUT

Meaning: The display option is the only option which may be specified for Sliding Average File.

Action: If the "MEAN" option is desired check the spelling of the name assigned to the MSTRFIL parameter to ensure that a standard Answer File is specified. If a Sliding Average file is to be processed, delete the "MEAN" option and resubmit the job.

Message:

RPT011S SUM STMT MAY NOT BE USED WITH SLIDING AVG INPUT-RUN ABORTED

Meaning: The display option is the only option which may be specified for a Sliding Average file.

Action: If a "SUM" option is desired check the spelling of the name assigned to the MSTRFIL parameter to ensure that a standard Answer File is specified. If a Sliding Average file is to be processed, delete the "SUM" option and resubmit the job.

Message:

RPT012W INTERVAL CODE CONVERSION ERROR-EXECUTION CONTINUING

Meaning: The internal sliding average interval used by the Sliding Average Program could not be converted to a two digit number for use in the report header. The output is usable. The error may occur in the rare condition of a machine error.

Action: Save the input files and the output and contact your Program Support Group for assistance.

Message:

RPT013S OUTPUT FILE CONTAINS NO DATA

Meaning: There were no records processed hence the report contains no data.

Action: Check the number of records returned in the answer file and, if desired, change the retrieval and rerun the job.

Message:

RPT014S KEYWORD READINGS REQUIRES STANDARD ANSWER FILE-RUN ABORTED

Meaning: Only the optional keyword "AVERAGES" may follow the word DISPLAY when processing a sliding average file, however the word "READINGS" was detected.

Action: If a Sliding Averages file is to be processed with the DISPLAY option, replace, the word "READINGS" with "AVERAGES" and resubmit the job.

Message:

RPT015S KEYWORD AVERAGES REQUIRES SLIDING AVG VALUES FILE-RUN ABORTED

Meaning: Only the optional keyword "READINGS" may follow the word DISPLAY when processing a standard answer file, however the word "AVERAGES" was detected.

Action: If a Standard Answer file is to be processed with the "DISPLAY" option, replace the word "AVERAGES" with the word "READINGS" and resubmit the job.

Message:

RPT016S MEAN AND SUM ARE MUTUALLY EXCLUSIVE OPTIONS-RUN ABORTED

Meaning: The control card may contain the "MEAN" option or the "SUM" option but not both.

Action: Select the option desired, keypunch the desired control card and resubmit the job.

IXSLDAVG

The following are the diagnostic messages which may be generated by the Sliding Average Program.

Message:

SLA002S ANSWER FILE IS NOT A SLIDING AVERAGE FILE-RUN ABORTED

Meaning: The program will process only the Sliding Average Answer File produced by the Sliding Average Retrieval program.

Action: Insure that the Answer File was produced by a Retrieval Program which the keyword "SLIDING" is used in the $$SELECT card.

Message:

SLA003S CONTROL CARD MISSING-RUN ABORTED

Meaning: The control statement must be included to indicate the interval.

Action: Add the control card and resubmit the job.

Message:

SLA004S NON-NUMERIC INTERVAL ON CONTROL CARD-RUN ABORTED

Meaning: The interval must be an integer in the range of 2 to 31; leading zeroes are not required.

Action: Correct the control card and resubmit the job.

Message:

SLA005S INTERVAL SPECIFIED <2 OR >31-RUN ABORTED

Meaning: The interval specified in the AVERAGE statement is not within the range of 2 to 31.

Action: Correct the control card and resubmit the job.

Message:

SLA006S SLIDING AVERAGE RECORD REQUIRED-RUN ABORTED

Meaning: The program has found a record that is not a sliding average record. This can happen if a standard answer file is concatenated to the Sliding Average file via the JCL.

Action: Insure that all files used as input are Sliding Average Answer files.

Message:

SLA008S SLIDING AVERAGE ANSWER FILE CONTAINS NO DATA-RUN ABORTED

Meaning: There were no records in the Sliding Average Answer file possible because the retrieval request was overly restrictive and no records qualified.

Action: Examine your retrieval request and rerun the job, if desired.

Message:

SLA009S SLIDING AVERAGE STATEMENT INVALID OR MISSING-RUN ABORTED

Meaning: The statement identifier "AVERACE" is misspelled or missing.

Action: Correct the control statement and resubmit the job.

Message:

SLA010S SYNTAX REQUIRES NUMERIC PARAMETER BETWEEN 2 AND 31-RUN ABORTED

Meaning: The program could not recognize the interval parameter, possibly because it is missing, improperly keypunched or misplaced.

Action: Correct the control statement and resubmit the job.

Message:

SLA011W INTERVAL SPECIFIED EXCEEDS MAX READINGS-SKIPPING TO NEXT SAMPLE

Meaning: The interval specified exceeds the maximum number of readings for the time code. The program skips to the next data set defined by a change in the combination Key-1 and Key-3 in the answer record.

Action: Either of two approaches may be taken to process the records which have been skipped. If the answer file is relatively small, reduce the interval and rerun the job. If the answer file is relatively large, rerun the retrieval to extract the records which have been skipped and rerun the Sliding Average program.

LXLNGPRC

The following are the diagnostic messages which may be generated by the Retrieval Language Processor Program.

Message:

LNG001S PREMATURE END OF FILE ON CONTROL CARD FILE-$$END MISSING-RUN ABORTED

Meaning: The last card in specifying a retrieval must be a $$END card. The retrieval run is terminated prematurely.

Action: Correct the error and resubmit the job.

Message:

LNG002S FIRST CONTROL CARD NOT $$SELECT-RUN ABORTED

Meaning: The first control card in specifying a retrieval must be a $$SELECT card. The run is terminated prematurely.

Action: Correct the error and resubmit the job.

Message:

LNG003S IDENTIFIER DATA NAME INVALID-RUN ABORTED

Meaning: Subject and object names (identifiers) must be spelled exactly, including the hyphen, as spelled in the Valid Names Table. See Figure 6.1.2.

Action: Correct the subject name or object name and resubmit the job.

Message:

LNG004S PARENTHESES UNBALANCED AROUND FIRST OCCURRENCE OF REPEATING NAME-ABORTED

Meaning: The first reference to a repeating name must appear at least once without parentheses prior to the use of repeating fields enclosed in parentheses.

Action: Correct the error and resubmit the job.

Message:

LNG005S NO CONTROL CARDS IN INPUT STREAM-RUN ABORTED

Meaning: As a minimum the $$SELECT card and the $$END card must be present for a retrieval.

Action: Correct the error and resubmit the job.

Message:

LNG006W INVALID NEGATION CHARACTER-NOT CONDITION WILL BE ASSUMED

Meaning: Although any character will serve as the negation symbol "N", the correct character should be used to avoid the diagnostic message.

Action: No action required in this job unless other errors have been detected.

Message:

LNG007S INVALID RELATIONAL OPERATOR-RUN WILL BE ABORTED

Meaning: The relational operator is not one of the following symbols: "=" denoting equals, ">" denoting greater than or "<" denoting less than.

Action Correct the error and resubmit the job.

Message:

LNG008S INVALID BOOLEAN OPERATOR-RUN WILL BE ABORTED

Meaning: Either one or more relational expressions are missing or the Boolean operator AND or OR has been entered following the last relational expression in the retrieval specification.

Action: Correct the errors and resubmit the job.

Message:

LNG009S UNEXPECTED INPUT-CARD IGNORED-SCANNING FOR $$END CARD

Meaning: The sequence of the retrieval specification statements is incorrect. The program is expecting a $$END card (i.e., the Boolean operator AND or OR did not follow the last relational expression). The error could be caused by a card out of sequence or a missing Boolean operator.

Action: Correct the error and resubmit the job.

Message:

LNG010S UNMATCHED BOOLEAN OPERATOR-RUN ABORTED

Meaning: Either one or more relational expressions are missing or the

Boolean AND or OR has been entered in the last relationship job input card.

Action: Correct the errors and resubmit the job.

Message:

LNG015S $$END CARD MISPLACED OR MISSING RUN ABORTED

Meaning: The program thinks the $$END card should be the next card. This error condition is raised when an end-of-file is not preceeded by a $$END card. Note the $$END is always required.

Action: Correct the error and resubmit the job.

RXRETRVR

The following are the diagnostic messages which may be generated by the Retrieval Program.

Message:

RSA001S MASTER FILE CONTAINS NO RECORDS

Meaning: The master file as indicated in the job is empty (null).

Action: Correct file name using latest listing of the master file for accuracy.

Message:

RSA002W ANSWER FILE CONTAINS NO RECORDS

Meaning: No answer records were selected (no records qualified) fitting the given criteria specified on the retrieval statements).

Action: Check retrieval statements for accuracy if retrieval was expected. After correcting, resubmit job run if necessary.

Transaction Editor Diagnostic Messages

TRE001E ERROR: COLUMN 01 - INVALID TRANSACTION CODE - CARD REJECTED

The only valid transaction codes are 1, 2, and 3.

ACTION: CORRECT THE TRANSACTION CODE AND RE-SUBMIT.

TRE002E ERROR: COLUMN 01 - NON-NUMERIC TRANSACTION CODE - CARD REJECTED

The only valid transaction codes are 1, 2, and 3.

ACTION: CORRECT THE TRANSACTION CODE AND RE-SUBMIT.

TRE003E ERROR: COLUMN 80 - INVALID ACTION CODE - CARD REJECTED

The only valid action codes are 1 (Delete), 2 (Add) and 3 (Change).

ACTION: CORRECT THE ACTION CODE AND RE-SUBMIT.

TRE004E ERROR: COLUMN 80 - NON-NUMERIC ACTION CODE - CARD REJECTED

The only valid action codes are 1 (Delete), 2 (Add) and 3 (Change).

ACTION: CORRECT THE ACTION CODE AND RE-SUBMIT.

TRE005E ERROR: COLUMN xx - INVALID TIME CODE - CARD REJECTED

The time code beginning in Column xx is invalid. The valid time codes are shown in Table 3, Appendix A, Page 149 of this manual.

ACTION: CORRECT THE TIME CODE AND RE-SUBMIT.

TRE006E ERROR: COLUMN 02 - NON-NUMERIC STATE CODE - CARD REJECTED

ACTION: CORRECT THE STATE CODE AND RE-SUBMIT.

TRE007E ERROR: COLUMN 02 - INVALID STATE CODE - CARD REJECTED

State Code is not in the site file.
ACTION: CORRECT THE STATE CODE AND RE-SUBMIT

TRE008E ERROR: COLUMN xx - NON-NUMERIC AREA CODE - CARD REJECTED
ACTION: CORRECT THE AREA CODE AND RE-SUBMIT.

TRE009E ERROR: COLUMN xx - NON-NUMERIC SITE CODE - CARD REJECTED

ACTION: CORRECT THE SITE CODE AND RE-SUBMIT.

TRE010E ERROR: COLUMN xx - NON-ALPHABETIC AGENCY CODE - CARD REJECTED

ACTION: CORRECT THE AGENCY CODE AND RE-SUBMIT.

TRE011E ERROR: COLUMN xx - NON-NUMERIC PROJECT CODE - CARD REJECTED

ACTION: CORRECT THE PROJECT CODE AND RE-SUBMIT.

TRE012E ERROR: COLUMN xx - NON-NUMERIC TIME CODE - CARD REJECTED

The time code beginning in Column xx is invalid. The valid time codes are shown in Table 3, Appendix A, Page 149 of this manual.

ACTION: CORRECT THE TIME CODE AND RE-SUBMIT.

TRE013E ERROR: COLUMN xx - NON-NUMERIC YEAR - CARD REJECTED

ACTION: CORRECT THE YEAR AND RE-SUBMIT.

TRE014E ERROR: COLUMN xx - YEAR LESS THAN SIXTY - CARD REJECTED

SAROAD does not accept data prior to 1960.

TRE015E ERROR: COLUMN xx - NON-NUMERIC MONTH - CARD REJECTED

ACTION: CORRECT THE MONTH AND RE-SUBMIT.

TRE016E ERROR: COLUMN xx - MONTH ZERO OR GREATER THAN TWELVE - CARD REJECTED

ACTION: CORRECT THE MONTH AND RE-SUBMIT.

TRE017E ERROR: COLUMN xx - NON-NUMERIC DAY - CARD REJECTED

ACTION: CORRECT THE DAY AND RE-SUBMIT.

TRE018E ERROR: COLUMN xx - INVALID DAY - CARD REJECTED

ACTION: CORRECT THE DAY AND RE-SUBMIT.

TRE019E ERROR: COLUMN xx - NON-NUMERIC START HOUR - CARD REJECTED

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

TRE020E ERROR: COLUMN xx - DECIMAL POSITION GREATER THAN FOUR - CARD REJECTED

AQDHS-II currently will not accept a decimal position greater than 4.

ACTION: CHANGE UNITS, DATA VALUE, AND DECIMAL CODE AND RE-SUBMIT.

TRE021E ERROR: COLUMN xx - NON-NUMERIC PARAMETER CODE - CARD REJECTED

ACTION: CORRECT THE PARAMETER CODE AND RE-SUBMIT.

TRE022E ERROR: COLUMN xx - NON-NUMERIC METHOD CODE - CARD REJECTED

ACTION: CORRECT THE METHOD CODE AND RE-SUBMIT.

TRE023E ERROR: COLUMN xx - NON-NUMERIC UNITS CODE - CARD REJECTED

ACTION: CORRECT THE UNITS CODE AND RE-SUBMIT.

TRE024E ERROR: COLUMN xx - NON-NUMERIC DECIMAL POSITION - CARD REJECTED

ACTION: CORRECT THE DECIMAL POSITION AND RE-SUBMIT.

TRE025E ERROR: COLUMN 21 - START HOUR GREATER THAN TWENTY-THREE - CARD REJECTED

The valid Start Hour range for Form 1 (Hourly) data is 0 through 23.

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

TRE026W WARNING: COLUMN xx - START HOUR GREATER THAN TWENTY-THREE - CARD ACCEPTED

An erroneous Start Hour has been coded, however this will not affect the operation of the programs or the file sequence. (for forms 2 & 3)

ACTION: NO ACTION REQUIRED.

TRE027E ERROR: COLUMN xx - NON-NUMERIC READING - CARD REJECTED

ACTION: CORRECT THE READING AND RE-SUBMIT.

TRE028E ERROR: RECORD CONTAINS NO READINGS - CARD REJECTED

Transaction contains no readings for Form 1 data or no key information and readings for Form 2 and Form 3 data.

ACTION: CORRECT AND RE-SUBMIT.

TRE029E ERROR: COLUMN 19 - NON-NUMERIC NUMBER OF SAMPLES - CARD REJECTED

ACTION: CORRECT THE NUMBER OF SAMPLES AND RE-SUBMIT.

TRE030E ERROR: COLUMN 22 - INVALID COMPOSITE TIME CODE - CARD REJECTED

The only valid Composite Time Codes are 1-9, A, and B.

ACTION: CORRECT THE COMPOSITE TIME CODE AND RE-SUBMIT.

TRE031E ERROR: COLUMN 21 - NON-NUMERIC COMPOSITE TYPE - CARD REJECTED

The only valid Composite Type codes are 1 (Quarterly), 2 (Seasonal), 3 (Monthly), 4 (Weekly) and 5 (Annual).

ACTION: CORRECT THE COMPOSITE TYPE AND RE-SUBMIT.

TRE032E ERROR: COLUMN 17 - NON-NUMERIC PERIOD - CARD REJECTED

The Composite Period field contains invalid data.

ACTION: CORRECT AND RE-SUBMIT.

TRE033E ERROR: COLUMN 17 - INVALID PERIOD - CARD REJECTED

The Composite Period field contains invalid data.

ACTION: CORRECT AND RE-SUBMIT.

TRE034E ERROR: COLUMN 21 - INVALID COMPOSITE TYPE - CARD REJECTED

ACTION: CORRECT AND RE-SUBMIT.

TRE035E ERROR: COLUMN xx - INVALID AREA CODE - CARD REJECTED

The Area Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE036E ERROR: COLUMN xx - INVALID SITE CODE - CARD REJECTED

The Site Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE037E ERROR: COLUMN xx - INVALID AGENCY CODE -- CARD REJECTED

The Agency Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE038E ERROR: COLUMN xx - INVALID PROJECT CODE - CARD REJECTED

The Project Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE039E ERROR: COLUMN xx - INVALID PARAMETER CODE - CARD REJECTED

The Parameter Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE040E ERROR: COLUMN xx - INVALID METHOD CODE - CARD REJECTED

The Method Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE041E ERROR: COLUMN xx - INVALID UNITS CODE - CARD REJECTED

The Units Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE042E ERROR: COLUMN xx - READING EXCEEDS MAXIMUM PERMITTED - CARD REJECTED

Card presently rejected by AQDHS-II.

TRE043E ERROR: COLUMN xx - READING EXCEEDS MAXIMUM PERMITTED - GROUP yy REJECTED

Group presently rejected by AQDHS-II.

TRE044E ERROR: COLUMN 79 - INVALID STATUS FLAG - CARD REJECTED

Blank and S are the only valid Status Flag values.

ACTION: CORRECT AND RE-SUBMIT.

TRE045E ERROR: COLUMN xx - INVALID START HOUR (READINGS SPAN END OF DAY) - REJECTED

ACTION: CORRECT AND RE-SUBMIT.

* TRE046E ERROR: INVALID OPTION - RUN ABORTED

ACTION: CORRECT AND RE-SUBMIT.

TRE047E ERROR: COLUMN xx - INVALID AREA CODE - GROUP yy REJECTED

The Area Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE048E ERROR: COLUMN xx - INVALID SITE CODE - GROUP yy REJECTED

The Site Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE049E ERROR: COLUMN xx - INVALID AGENCY CODE - GROUP yy REJECTED

The Agency Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE050E ERROR: COLUMN xx - INVALID PROJECT CODE - GROUP yy REJECTED

The Project Code specified is not in the Site Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE SITE FILE.

TRE051E ERROR: COLUMN xx - INVALID PARAMETER CODE - GROUP yy REJECTED

The Parameter Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE052E ERROR: COLUMN xx - INVALID METHOD CODE - GROUP yy REJECTED

The Method Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE053E ERROR: COLUMN xx - INVALID UNITS CODE - GROUP yy REJECTED

The Units Code specified is not in the Parameter Code File.

ACTION: CORRECT AND RE-SUBMIT OR UPDATE THE PARAMETER FILE.

TRE054E ERROR: COLUMN xx - DECIMAL POSITION GREATER THAN FOUR - GROUP yy REJECTED

AQDHS-II currently will not accept a decimal position greater than 4.

ACTION: CHANGE UNITS, DATA VALUE, AND DECIMAL CODE AND RE-SUBMIT.

TRE055E ERROR: COLUMN xx - NON-NUMERIC DECIMAL POSITION - GROUP yy REJECTED

ACTION: CORRECT THE DECIMAL POSITION AND RE-SUBMIT.

TRE056E ERROR: COLUMN xx - NON-NUMERIC AREA CODE - GROUP yy REJECTED

ACTION: CORRECT THE AREA CODE AND RE-SUBMIT.

TRE057E ERROR: COLUMN xx - NON-NUMERIC SITE CODE - GROUP yy REJECTED

ACTION: CORRECT THE SITE CODE AND RE-SUBMIT.

TRE058E ERROR: COLUMN xx - NON-NUMERIC PARAMETER CODE - GROUP yy REJECTED

ACTION: CORRECT THE PARAMETER CODE AND RE-SUBMIT.

TRE059E ERROR: COLUMN xx - NON-NUMERIC METHOD CODE - GROUP yy REJECTED

ACTION: CORRECT THE METHOD CODE AND RE-SUBMIT.

TRE060E ERROR: COLUMN xx - NON-NUMERIC UNITS CODE - GROUP yy REJECTED

ACTION: CORRECT THE UNITS CODE AND RE-SUBMIT.

TRE061E ERROR: COLUMN xx - NON-NUMERIC READING - GROUP yy REJECTED

ACTION: CORRECT THE READING AND RE-SUBMIT.

TRE062E ERROR: COLUMN xx - NON-NUMERIC START HOUR - GROUP yy REJECTED

ACTION: CORRECT THE START HOUR AND RE-SUBMIT.

---

*Serious Error - Do Not Use Any Output From This Run.

xx - Column number

yy - Group number

File Maintenance Diagnostic Messages

FMT001E ERROR: READING xx - ATTEMPT TO ADD DATA TO EXISTING READING - DATA REJECTED

ACTION: EXAMINE DATA IN THE TRANSACTION AND RE-SUBMIT ACCORDINGLY.

FMT002W WARNING: READING xx VALUE NOT SPECIFIED - FIELD FILLED WITH NINES.

ACTION: NONE.

FMT003E ERROR: NO MATCHING KEY FOUND ON MASTER FILE - RECORD REJECTED

ACTION: CORRECT TRANSACTION AND RE-SUBMIT.

FMT004E ERROR: READING xx - ATTEMPT TO CHANGE NON-EXISTING READING - DATA REJECTED

ACTION: EXAMINE DATA IN THE TRANSACTION AND RE-SUBMIT ACCORDINGLY.

* FMT005E ERROR: NEW MASTER WILL BE OUT OF SEQUENCE - RUN ABORTED.

ACTION: SORT THE TRANSACTIONS AND RE-SUBMIT.

* FMT006E ERROR: CONFLICTING OPTIONS - RUN ABORTED

ACTION: CORRECT THE OPTIONS CARD AND RE-SUBMIT.

FMT007E ERROR: MORE THAN ONE IT-COMPOSITE-TYPE - SKIPPING TO NEXT VALID TYPE

ACTION: SUBMIT ONLY ONE COMPOSITE TYPE PER FILE MAINTENANCE RUN.

Non-Numbered Errors

*

```
***DUPLICATE RECORD IN OLD MASTER FILE***
MASTER FILE RECORD KEY 1 = xxx
MASTER FILE RECORD KEY 2 = xxx
TRANSACTION RECORD KEY = xxx
***RUN TERMINATED***
***PLEASE REPORT THIS ERROR TO NADB***
```

```
*       ***MASTER FILE IS OUT OF SEQUENCE***
        MASTER FILE RECORD KEY 1 = xxx
        MASTER FILE RECORD KEY 2 = xxx
        TRANSACTION RECORD KEY = xxx
        ***RUN TERMINATED***
        ***PLEASE REPORT THIS ERROR TO NADB***

*       ***NEW MASTER FILE WILL BE OUT OF SEQUENCE***
        MASTER FILE RECORD KEY 1 = xxx
        MASTER FILE RECORD KEY 2 = xxx
        TRANSACTION RECORD KEY = xxx
        ***RUN TERMINATED***
        ***PLEASE REPORT THIS ERROR TO NADB***
```

---

*Serious Error - Do Not Use Any Output From This Run.

xx - Column number

AXMERGE MESSAGES

NORMAL COMPLETION

The following message is printed upon normal completion of AXMERGE:

```
AXMERGE . . . . . . . . . . . . . . FILE MERGE PROGRAM


INPUT FILE 1 CONTAINS xxxx RECORDS
INPUT FILE 2 CONTAINS mmmm RECORDS
OUTPUT FILE CONTAINS nnnn RECORDS
```

ABNORMAL COMPLETION

The following message is printed upon abnormal completion of AXMERGE:

```
IDENT-KEY= xxxx IS FOUND ON BOTH FILES... RUN TERMINATED....
MERGE FAILED.....
```

Appendix C - PROGRAM MODIFICATION

Increasing Size of Parm Code Table 155
  Parameter Code Table Maintenance 155
  Transaction Editor 155
  Detail List 156
  Data Analysis 157
  Statistical List 158

Increasing Size of Site Code Table 159
  Site Code Table Maintenance 159
  Transaction Editor 159
  Detail List 160
  Statistical List 161

Increasing Size of Parameter Standards Table 162
  Parameter Standards Table Maintenance 162
  Detail List 162
  Statistical List 163

INCREASING SIZE OF PARM CODE TABLE

Whenever it is desired to increase the size (number of entries) of the parameter, method, unit codes, minimum detectable table, it is necessary to modify the following programs:

Parameter Code Table Maintenance

Transaction Editor

Detail List

Data Analysis

Statistical List

The current limit for the number of entries in the table is 100 entries in all programs except Data Analysis. The limit in the Data Analysis program is currently 120.

The following paragraphs discuss the changes to be made in each program described above.

- **Parameter Code Table Maintenance**

  Change the VALUE clause of the following sentence:

  ```
  77 NBR-OF-PARMS          PIC 999 COMP SYNC VALUE 100.
  ```

  on or about sequence number 00016700, from 100 to the new limit of entries. For example:

  ```
  77 NBR-OF-PARMS          PIC 999 COMP SYNC VALUE 150.
  ```

  will increase the limit to 150 entries.

- **Transaction Editor**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-PARMS            PIC 999 COMP SYNC VALUE 100.
```

on or about sequence number 00045300, from 100 to the new limit of entries. For example:

```
77 NBR-OF-PARMS            PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries. The value should be the same as that specified in the Parameter Code Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 PARM-CODE-KEY-TABLE            OCCURS 100 TIMES.
```

on or about sequence number 00124200, from 100 to the new limit of entries. For example:

```
02 PARM-CODE-KEY-TABLE            OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-PARMS.

- **Detail List**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-PARMS            PIC 999 COMP SYNC VALUE 100.
```

on or about sequence number 00037800, from 100 to the new limit of entries. For example:

```
77 NBR-OF-PARMS            PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries, The value should be the same as that specified in the Parameter Code Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 PARM-CODE-KEY-TABLE          OCCURS 100 TIMES.
```

on or about sequence number 00133700, from 100 to the new limit of entries. For example:

```
02 PARM-CODE-KEY-TABLE          OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-PARMS.

Change the OCCURS clause of the following sentence:

```
02 PARM-DESCRIPTION-TABLE          OCCURS 100 TIMES.
```

on or about sequence number 00135300, from 100 to the new limit of entries. For example:

```
02 PARM-DESCRIPTION-TABLE          OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-PARMS.

- Data Analysis

Change the array size of the following variable:

```
X          , MVDATA( 600 )
```

on or about sequence number 00018200, from 600 to the new limit of entries, incrementing by 5 for each new entry. The current value of 600 sets a limit of 120 entries. To increase the limit to 150 entries, enter a value of 750 as the array size. The number of entries should be greater than or equal to the value specified in the Parameter Code Table Maintenance program.

- **Statistical List**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-PARMS          PIC 999 COMP SYNC VALUE 100.
```

on or about sequence number 00024400, from 100 to the new limit of entries. For example:

```
77 NBR-OF-PARMS          PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries. The value should be the same as that specified in the Parameter Code Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 PARM-CODE-KEY-TABLE           OCCURS 100 TIMES.
```

on or about sequence number 00090700, from 100 to the new limit of entries. For example:

```
02 PARM-CODE-KEY-TABLE           OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-PARMS.

Change the OCCURS clause of the following sentence:

```
02 PARM-DESCRIPTION-TABLE          OCCURS 100 TIMES.
```

b on or about sequence number 00126100, from 100 to the new limit of entries. For example:

```
02 PARM-DESCRIPTION-TABLE          OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-PARMS.

INCREASING SIZE OF SITE CODE TABLE

Whenever it is desired to increase the size (number of entries) of the valid site code table, it is necessary to modify the following programs:

Site Code Table Maintenance
Transaction Editor
Detail List
Statistical List

The current limit for the number of entries in the table is 100 entries.

The following paragraphs discuss the changes to be made in each program described above.

- Site Code Table Maintenance

  Change the VALUE clause of the following sentence:

  ```
  77 NBR-OF-SITES          PIC 999 COMP SYNC VALUE 100.
  ```

  on or about sequence number 00014800, from 100 to the new limit of entries. For example:

  ```
  77 NBR-OF-SITES          PIC 999 COMP SYNC VALUE 150.
  ```

  will increase the limit to 150 entries.

- Transaction Editor

  Change the VALUE clause of the following sentence:

  ```
  77 NBR-OF-SITES          PIC 999 COMP SYNC VALUE 100.
  ```

on or about sequence number 00045400, from 100 to the new limit of entries. For example;

```
77 NBR-OF-SITES         PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries. The value should be the same as that specified in the Site Code Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 SITE-CODE-TABLE         OCCURS 100 TIMES.
```

on or about sequence number 00125800, from 100 to the new limit of entries. For example:

```
02 SITE-CODE-TABLE         OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-SITES.

- **Detail List**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-SITES         PIC 999 COMP SYNC VALUE 100.
```

on or about sequence number 00037900, from 100 to the new limit of entries. For example:

```
77 NBR-OF-SITES         PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries. The value should be the same as that specified in the Site Code Table Maintenance program.

Change the OCCURS clause in the following sentence:

```
02 SITE-CODE-TABLE          OCCURS 100 TIMES.
```

on or about sequence number 00159400, from 100 to the new limit of entries. For example :

```
02 SITE-CODE-TABLE          OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified for NBR-OF-SITES.

- Statistical List

Change the VALUE clause in the following sentence:

```
77 NBR-OF-SITES          PIC 999 COMP SYNC VALUE 100.
```

on or about sequence number 00024500, from 100 to the new limit of entries. For example:

```
77 NBR-OF-SITES          PIC 999 COMP SYNC VALUE 150.
```

will increase the limit to 150 entries. The value should be the same as that specified in the Site Code Table Maintenance program.

Change the OCCURS clause in the following sentence:

```
02 SITE-CODE-TABLE          OCCURS 100 TIMES.
```

on or about sequence number 00092300, from 100 to the new limit of entries. For example:

```
02 SITE-CODE-TABLE          OCCURS 150 TIMES.
```

will increase the limit to 150 entries. The value should be the same as that specified in NBR-OF-SITES.

INCREASING SIZE OF PARAMETER STANDARDS TABLE

Whenever it is desired to increase the size (number of entries) of the parameter standards table, it is necessary to modify the following programs:

Parameter Standards Table Maintenance
Detail List
Statistical List

The current limit for the number of entries in the table is 50.

The following paragraphs discuss the changes to be made in each program described above.

- **Parameter Standards Table Maintenance**

  Change the VALUE clause of the following sentence:

  ```
  77 NBR-OF-STANDARDS          PIC 99 COMP SYNC VALUE 50.
  ```

  on or about sequence number 00016900, from 50 to the new limit of entries. For example:

  ```
  77 NBR-OF-STANDARDS          PIC 999 COMP SYNC VALUE 100.
  ```

  will increase the limit to 100 entries. Note that the picture clause must also be changed to allow for more digits.

- **Detail List**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-STANDARDS           PIC 99 COMP SYNC VALUE 50.
```

on or about sequence number 00038000, from 50 to the new limit of entries. For example:

```
77 NBR-OF-STANDARDS           PIC 999 COMP SYNC VALUE 100.
```

will increase the limit to 100 entries. The value should be the same as that specified in the Parameter Standards Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 STANDARDS-TABLE            OCCURS 50 TIMES.
```

on or about sequence number 00161200, from 50 to the new limit of entries. For example:

```
02 STANDARDS-TABLE            OCCURS 100 TIMES.
```

will increase the limit to 100 entries. The value should be the same as that specified for NBR-OF-STANDARDS.

- **Statistical List**

Change the VALUE clause of the following sentence:

```
77 NBR-OF-STANDARDS           PIC 99 COMP SYNC VALUE 50.
```

on or about sequence number 00024600, from 50 to the new limit of entries. For example:

```
77 NBR-OF-STANDARDS          PIC 999 COMP SYNC VALUE 100.
```

will increase the limit to 100 entries. The value should be the same as that specified in the Parameter Standards Table Maintenance program.

Change the OCCURS clause of the following sentence:

```
02 STANDARDS-TABLE          OCCURS 50 TIMES.
```

on or about sequence number 00126900, from 50 to the new limit of entries. For example:

```
02 STANDARDS-TABLE          OCCURS 100 TIMES.
```

will increase the limit to 100 entries. The value should be the same as that specified for NBR-OF-STANDARDS.

Appendix D - CATALOGUED PROCEDURES

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AQSACNVT - AQDHS-II FILE TO SAROAD INPUT

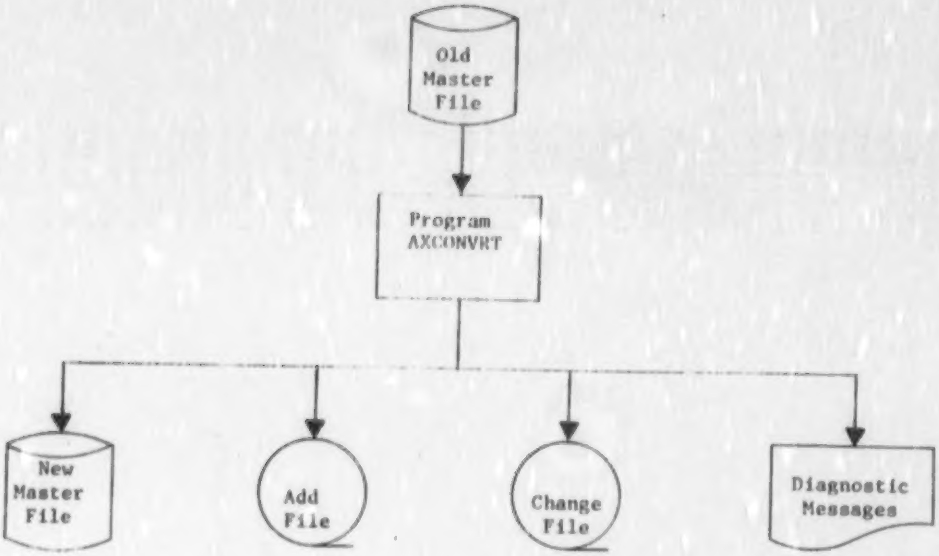
AQSACNVT is executed to convert the AQDHS-II master file to SAROAD input format. The input to the program consists of AQDHS-II master file records and is defined by DD name AQSMASTR. There are four output files created by the program. The first, defined by AQSNEWMS, contains the updated AQDHS-II master file. The second, defined by AQSDDFL, contains the add records. The third, defined, by AQSCHGFL, contains the change records. The fourth, defined by AQSPRINT, contains diagnostic messages produced during the conversion process.

DD NAME	DESCRIPTION
AQSMASTR	AQDHS master file to be converted
AQSNEWMS	New AQDHS master file
AQSPRINT	Print file for diagnostic messages
AQSADDFL	SAROAD add file deferred to DDNAME ADDFILE
AQSCHGFL	SAROAD change file deferred to DDNAME CHNGEFL

AQSACNVT - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	AXCONVRT	Program to convert AQDHS file to SAROAD input format
OLDMSTR	FTMSTRAA	Lowest level index of AQDHS file to be converted
NEWMSTR	FTMSTRAB	Lowest level index of new AQDHS file
UNIT	2314	Unit type upon which the new AQDHS master file is to reside
SERIAL	009858	Volume serial number of volume upon which AQDHS master file is to reside
DISP	'NEW, CATLG, DELETE'	Disposition of new AQDHS master file
SPCUNIT	TRK	Units in which space for the AQDHS master file is to be allocated
PRIMARY	20	Number of units to be allocated for the AQDHS master file's primary allocation
SECNDRY	10	Number of units to be allocated for the AQDHS master file's secondary allocation
OUT	A	Sysout class for all print files

AQSACNVT - Substitutable Parameters



AQSACNVT - Data Flow

AQSACNVT

```
//*            AQSACNVT                 BENFER TL        WF4   06/30/74
//*
//AQSACNVT PROC PROJECT='CCHS.ACS',
//              PROGRAM=AXCONVRT,
//              OLDMSTR=FTMSTRAA,
//              NEWMSTR=FTMSTRAB,
//              UNIT=2314,
//              SERIAL=C09P[illegible],
//              DISP='NEW,CATLG,DELETE',
//              SPCUNIT=TRK,
//              PRIMARY=20,
//              SECNDRY=10,
//              OUT=A
//*
//SUBMIT  EXEC PGM=&PROGRAM,
//              REGION=60K,
//              TIME=(1,0)
//*
//* CONVERT AQDHS FILE TO SAROAD INPUT FORMAT
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//          DD DSNAME=SYS1.ANS.COBSUBR,
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - OLD AQDHS MASTER FILE
//*
//AQSMASTR  DD DSNAME=&PROJECT..DATA.&OLDMSTR,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - NEW AQDHS MASTER FILE
//*
//AQSNEWMS  DD UNIT=&UNIT,
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),
//             DISP=(&DISP),
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),
//             DSNAME=&PROJECT..DATA.&NEWMSTR
//*
//* OUTPUT DATA SET - SAROAD ADD FILE
//*
//AQSADDFL  DD  DDNAME=ADDFILE
//*
//* OUTPUT DATA SET - SAROAD CHANGE FILE
//*
//AQSCHGFL  DD  DDNAME=CHNGEFL
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//AQSPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
```

AQSBCNVT - OLD AQDHS FILE TO NEW AQDHS INPUT

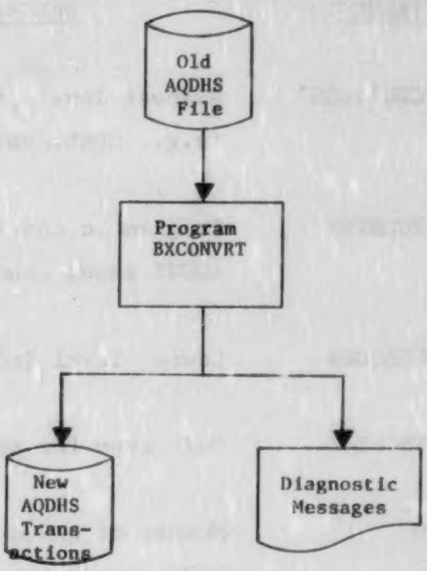
AQSBCNVT is executed to produce AQDHS input transactions from the old AQDHS master file. The input to the program consists of old AQDHS master file records and is defined by DD name AQSAROAD. There are two output files created by the program. The first, defined by AQSTRANS, contains the AQDHS input transactions. The second, defined by AQSPRINT, contains any diagnostic messages generated during the conversion process.

DD NAME	DESCRIPTION
AQSAROAD	Old AQDHS file
AQSTRANS	New AQDHS input transactions
AQSPRINT	Print file for diagnostic messages

AQSBCNVT - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	BXCONVRT	Program to convert old AQDHS file to new AQDHS input transactions
OLDFILE	OLDAQDHS	Lowest level index of old AQDHS file
TEMP	SYSOUT	Unit type for temporary work space
PRIMARY	10	Number of units to be allocated for new AQDHS input transactions' primary allocation
SECNDRY	5	Number of units to be allocated for new AQDHS input transactions' secondary allocation
OUT	A	Sysout class for all print files

AQSBCNVT - Substitutable Parameters



AQSBCNVT - Data Flow

```
//*             AQSBCNVT                 HURLEY RF        WF4  06/30/74  00000100
//*                                                                      00000200
//AQSBCNVT PROC PROJECT='ODHS.AQS',                                      00000300
//              PROGRAM=BXCONVRT,                                        00000400
//              OLDFILE=OLDAQDHS,                                        00000500
//              TEMP=SYSOUT,                                             00000600
//              SPCUNIT=TRK,                                             00000700
//              PRIMARY=10,                                              00000800
//              SECNDRY=5,                                               00000900
//              OUT=A                                                    00001000
//*                                                                      00001100
//CONVERT EXEC PGM=&PROGRAM,                                             00001200
//              REGION=60K,                                              00001300
//              TIME=(1,0)                                               00001400
//*                                                                      00001500
//* CONVERT OLD AQDHS FILE TO NEW AQDHS INPUT TRANSACTIONS               00001600
//*                                                                      00001700
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                    00001800
//              VOLUME=(PRIVATE,RETAIN),                                 00001900
//              DISP=(SHR,PASS)                                          00002000
//          DD DSNAME=SYS1.ANS.COBSUBR,                                  00002100
//              VOLUME=(PRIVATE,RETAIN),                                 00002200
//              DISP=(SHR,PASS)                                          00002300
//*                                                                      00002400
//* INPUT DATA SET - OLD AQDHS FILE                                      00002500
//*                                                                      00002600
//AQSAROAD  DD DSNAME=&PROJECT..DATA.&OLDFILE,                           00002700
//              VOLUME=(PRIVATE,RETAIN),                                 00002800
//              DISP=(SHR,PASS)                                          00002900
//*                                                                      00003000
//* OUTPUT DATA SET - NEW AQDHS INPUT TRANSACTIONS                       00003100
//*                                                                      00003200
//AQSTRANS  DD UNIT=&TEMP,                                               00003300
//              DISP=(NEW,PASS,DELETE),                                  00003400
//              SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),               00003500
//              DSNAME=&&OLDTRNS                                         00003600
//*                                                                      00003700
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                00003800
//*                                                                      00003900
//AQSPRINT  DD SYSOUT=&OUT                                               00004000
//*                                                                      00004100
//* OUTPUT DATA SETS - SYSTEM OPERATION                                  00004200
//*                                                                      00004300
//SYSPRINT  DD SYSOUT=&OUT                                               00004400
//*                                                                      00004500
//SYSOUT    DD SYSOUT=&OUT                                               00004600
//*                                                                      00004700
//SYSPUNCH  DD SYSOUT=&OUT                                               00004800
//*                                                                      00004900
//SYSTERM   DD SYSOUT=&OUT                                               00005000
//*                                                                      00005100
//SYSUDUMP  DD SYSOUT=&OUT                                               00005200
//*                                                                      00005300
```

AQSCNVRT - OLD AQDHS INPUT TO NEW AQDHS INPUT

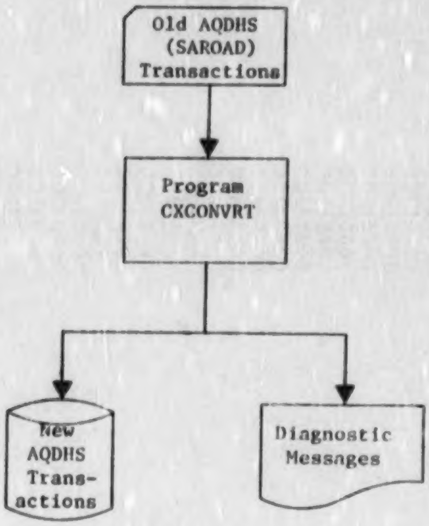
AQSCNVRT is executed to convert old format AQDHS (SAROAD) input transactions to new format AQDHS input transactions. The input to the conversion program consists of old format AQDHS input transactions and is defined by DD name AQSAROAD. There are two output files created by the program. The first, defined by AQSTRANS, contains the new format AQDHS transactions. The second, defined by AQSPRINT, contains any diagnostic messages generated during the conversion process.

DD NAME	DESCRIPTION
AQSAROAD	Old AQDHS (SAROAD) input transactions
AQSTRANS	New AQDHS transactions
AQSPRINT	Print file for diagnostic messages

AQSCNVRT - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	CXCONVRT	Program to convert old AQDHS input format to new AQDHS input format
OUT	A	Sysout class for all print files

AQSCNVRT - Substitutable Parameters



AQSCNVRT - Data Flow

```
//*              AQSCNVRT                 HURLEY RF        WF4  06/30/74
//*
//AQSCNVRT PROC PROJECT='ODHS.AQS',
//              PROGRAM=CXCCNVRT,
//              OUT=A
//*
//CONVERT EXEC PGM=&PROGRAM,
//              REGION=60K,
//              TIME=(1,0)
//*
//* CONVERT SAROAC INPUT FORMAT TO AQDHS INPUT FORMAT
//*
//STEPLIB    DD DSNAME=&PROJECT..LOAD,
//              VOLUME=(PRIVATE,RETAIN),
//              DISP=(SHR,PASS)
//           DD DSNAME=SYS1.ANS.COBSUBR,
//              VOLUME=(PRIVATE,RETAIN),
//              DISP=(SHR,PASS)
//*
//* INPUT DATA SET - SAROAC TRANSACTIONS
//*
//AQSAROAC   DD DDNAME=INPUT,
//              DCB=BLKSIZE=80
//*
//* OUTPUT DATA SET - AQDHS TRANSACTIONS
//*
//AQSTRANS   DD DDNAME=OUTPUT
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//AQSPRINT   DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT   DD SYSOUT=&OUT
//*
//SYSOUT     DD SYSOUT=&OUT
//*
//SYSDBOUT   DD SYSOUT=&OUT
//*
//SYSDTERM   DD SYSOUT=&OUT
//*
//SYSUDUMP   DD SYSOUT=&OUT
//*
```

AQSDANAL - DATA ANALYSIS

AQSDANAL is executed to perform various statistical analyses on the AQDHS master file or answer file. There are two input files used by this program. The first, defined by DD name FT08F001, contains the flagged master file or answer file. The second, defined by FT09F001, contains the flagged key portion of the parameter, method, unit codes table. There are two output files created by this program. The first, defined by FT10F001, contains the statistics file. The second, defined by FT06F001, contains any diagnostic messages generated during the analysis.

DD NAME	DESCRIPTION
FT08F001	AQDHS master file
FT09F001	Key portion of parameter, method, unit table
FT10F001	Statistics output file
FT06F001	Print file for diagnostic messages

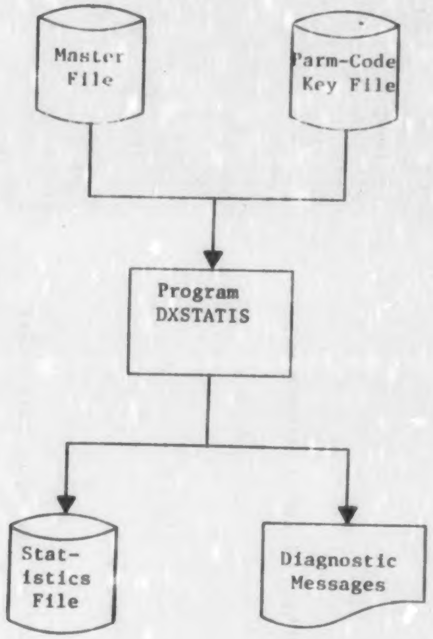
AQSDANAL - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	DXSTATIS	Program to perform statistical analyses of readings in AQDHS master file
MSTRFIL	MTMSTRAA	Lowest level index of AQDHS master file
PARMKFL	NTPRM1AA	Lowest level index of key portion of parameter, method, unit table
STATFIL	STMSTRAA	Lowest level index of statistics output file
UNIT	2314	Unit type upon which the statistics file is to reside
SERIAL	009858	Volume serial number of volume upon which statistics file is to reside
DISP	'NEW,CATLG DELETE'	Disposition of statistics file
SPCUNIT	TRK	Units in which space for the statistics file is to be allocated
PRIMARY	10	Number of units to be allocated for the statistics file's primary allocation

AQSDANAL - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
SECNDRY	5	Number of units to be allocated for the statistics file's secondary allocation
RECFM	FB	Recording format is fixed, blocked.
LRECL	141	Record length for statistics file
BLKSIZE	1692	Block size for statistics file
OUT	A	Sysout Class for all print files

AQSDANAL - Substitutable Parameters
(continued)



AQSDANAL - Data Flow

```
//*            AQSDANAL                   HURLEY RF        WF4   06/30/74
//*
//AQSDANAL PROC PROJECT='CDHS.AQS',
//             PROGRAM=CXSTATIS,
//             MSTRFIL=MTMSTRAA,
//             PARMKFL=NTPRM1AA,
//             STATFIL=STMSTRAA,
//             UNIT=2314,
//             SERIAL=CC5858,
//             DISP='NEW,PASS,DELETE',
//             SPCUNIT=TRK,
//             PRIMARY=10,
//             SECNDRY=5,
//             RECFM=FB,
//             LRECL=141,
//             BLKSIZE=1692,
//             OUT=A
//*
//ANALYZE EXEC PGM=&PROGRAM,
//             REGION=100K,
//             TIME=(1,0)
//*
//* PERFORM STATISTICAL ANALYSIS OF READINGS IN AQDHS MASTER FILE
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - AQDHS MASTER FILE
//*
//FT08F001  DD DSNAME=&PROJECT..DATA.&MSTRFIL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - KEY PORTION OF PARAMETER, METHOD, UNIT TABLE
//*
//FT09F001  DD DSNAME=&PROJECT..DATA.&PARMKFL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - STATISTICS FILE
//*
//FT10F001  DD UNIT=&UNIT,
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),
//             DISP=(&DISP),
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),
//             DSNAME=&PROJECT..DATA.&STATFIL,
//             DCB=(RECFM=&RECFM,LRECL=&LRECL,BLKSIZE=&BLKSIZE)
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//FT06F001  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
```

00005900

AQSCANAL //*

AQSELIST - DETAIL LIST

AQSELIST is executed to produce a detailed listing of the contents of the AQDHS master file. There are six input files used by the program. The first, defined by DD name AQSINPUT, contains the control card required by the program. The second, defined by AQSMASTR, contain the master or answer file to be listed. The third, defined by AQSPARMK, contains the key portion of the parameter, method, unit codes table. The fourth, defined by AQSPARMD, contains the description portion of the parameter, method, unit codes table. The fifth, defined by AQSSITES, contains the valid site codes table. The sixth, defined by AQSTNDRD, contains the parameter standards table. There is one output file created by the program. This file, defined by AQSPRINT, contains the detailed report listing and any diagnostic messages generated during the reporting process.

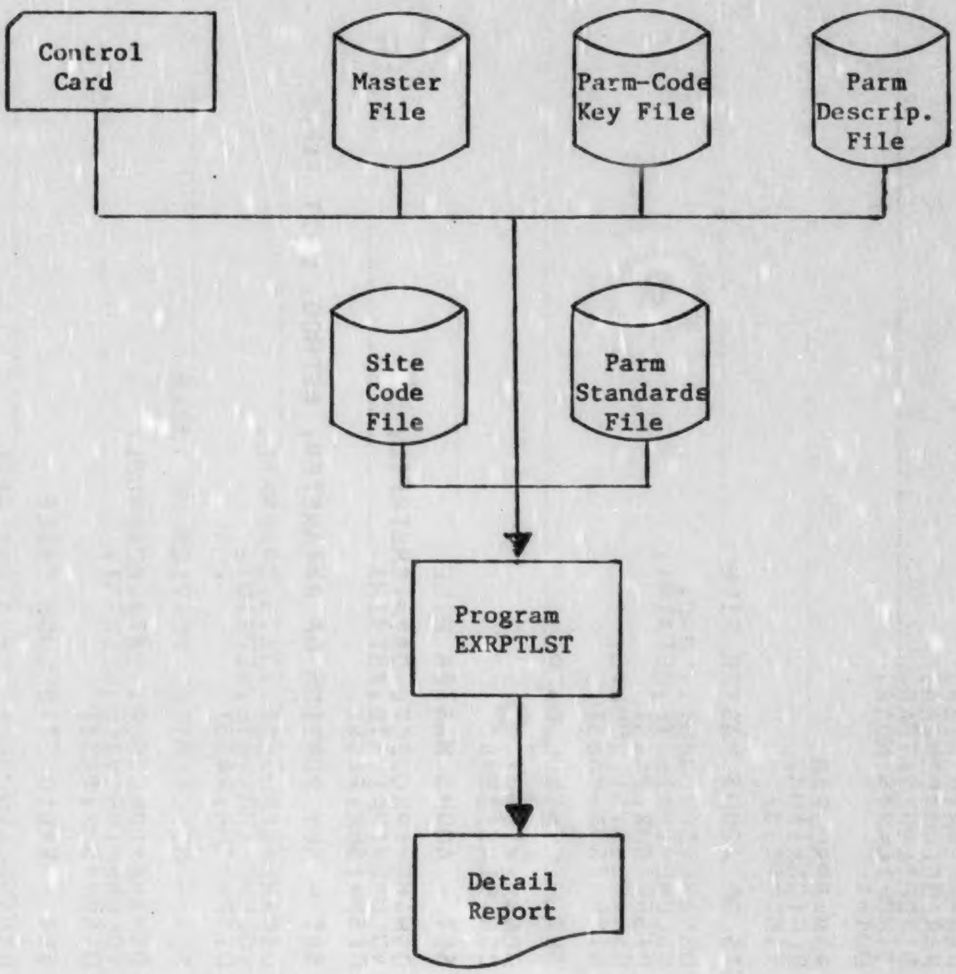
Figure 7.1.2-1 describes the format of the control card for Sliding Average reports. Figure 7.1.2-2 describes the format of the control cards for a Standard Answer report.

DD NAME	DESCRIPTION
AQSINPUT	AQDHS control card
AQSMASTR	AQDHS master file
AQSPARMK	Key portion of parameter, method, unit table
AQSPARMD	Description portion of table
AQSSITES	Valid site codes table
AQSTNDRD	Parameter standards table
AQSPRINT	Print file for report listing

AQSELIST - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	EXRPTLST	This program lists the contents of the AQDHS master file
MSTRFIL	FTMSTRAA	Lowest level index of the AQDHS master file
PARMKFL	HTPRM1AA	Lowest level index of the key portion of parameter, method, unit table
PARMDFL	HTPRM2AA	Lowest level index of the description portion of the above table
SITEFIL	HTSITEAA	Lowest level index of the valid site codes table
STNDFIL	HTSTNDAA	Lowest level index of the parameter standards table
OUT	A	Sysout class for all print files

AQSELIST - Substitutable Parameters



AQSELIST - Data Flow

```
//*              AQSELIST                      HURLEY RF          WF4  06/30/74   00000100
//*                                                                               00000200
//AQSELIST PROC  PROJECT='CNA087.LMH.CDHS.HQ.AQS',                                00000300
//               PROGRAM=EXRPTLST,                                                00000400
//               MSTRFIL=FTMSTRAA,                                                00000500
//               PARMKFL=HTPRM1AA,                                                00000600
//               PARMDFL=HTPRM2AA,                                                00000700
//               SITEFIL=HTSITEAA,                                                00000800
//               STNDFIL=HTSTNDAA,                                                00000900
//               OUT=A                                                            00001000
//*                                                                               00001100
//REPORT  EXEC   PGM=&PROGRAM,                                                    00001200
//               REGION=110K,                                                     00001300
//               TIME=(1,0)                                                       00001400
//*                                                                               00001500
//* LIST CONTENTS OF AQDHS MASTER FILE                                            00001600
//*                                                                               00001700
//STEPLIB    DD DSNAME=&PROJECT..LOAD,                                            00001800
//              VOLUME=(PRIVATE,RETAIN),                                          00001900
//              DISP=(SHR,PASS)                                                   00002000
//           DD DSNAME=SYS1.COBLIB,                                               00002100
//              DISP=(SHR,PASS)                                                   00002200
//*                                                                               00002300
//* INPUT DATA SET - CONTROL CARD                                                 00002400
//*                                                                               00002500
//AQSINPUT   DD DDNAME=INPUT,                                                     00002600
//              DCB=BLKSIZE=80                                                    00002700
//*                                                                               00002800
//* INPUT DATA SET - AQDHS MASTER FILE                                            00002900
//*                                                                               00003000
//AQSMASTR   DD DSNAME=&PROJECT..DATA.&MSTRFIL,                                   00003100
//              VOLUME=(PRIVATE,RETAIN),                                          00003200
//              DISP=(SHR,PASS)                                                   00003300
//*                                                                               00003400
//* INPUT DATA SET - KEY PORTION OF PARAMETER, METHOD, UNIT TABLE                 00003500
//*                                                                               00003600
//AQSPARMK   DD DSNAME=&PROJECT..DATA.&PARMKFL,                                   00003700
//              VOLUME=(PRIVATE,RETAIN),                                          00003800
//              DISP=(SHR,PASS)                                                   00003900
//*                                                                               00004000
//* INPUT DATA SET - DESCRIPTION PORTION OF TABLE                                 00004100
//*                                                                               00004200
//AQSPARMD   DD DSNAME=&PROJECT..DATA.&PARMDFL,                                   00004300
//              VOLUME=(PRIVATE,RETAIN),                                          00004400
//              DISP=(SHR,PASS)                                                   00004500
//*                                                                               00004600
//* INPUT DATA SET - VALID SITE CODE TABLE                                        00004700
//*                                                                               00004800
//AQSSITES   DD DSNAME=&PROJECT..DATA.&SITEFIL,                                   00004900
//              VOLUME=(PRIVATE,RETAIN),                                          00005000
//              DISP=(SHR,PASS)                                                   00005100
//*                                                                               00005200
//* INPUT DATA SET - PARAMETER STANDARDS TABLE                                    00005300
//*                                                                               00005400
//AQSTNDRD   DD DSNAME=&PROJECT..DATA.&STNDFIL,                                   00005500
//              VOLUME=(PRIVATE,RETAIN),                                          00005600
```

AQSELIST

```
//             DISP=(SHR,PASS)                                       00005700
//*                                                                  00005800
//* OUTPUT DATA SET - REPORT LISTING                                 00005900
//*                                                                  00006000
//AQSPRINT  DD SYSOUT=&OUT                                           00006100
//*                                                                  00006200
//AQSREPTS  DD  SYSOUT=&OUT                                          00006300
//*                                                                  00006400
//* OUTPUT DATA SETS - SYSTEM OPERATION                              00006500
//*                                                                  00006600
//SYSPRINT  DD SYSOUT=&OUT                                           00006700
//*                                                                  00006800
//SYSOUT    DD SYSOUT=&OUT                                           00006900
//*                                                                  00007000
//SYSDBOUT  DD SYSOUT=&OUT                                           00007100
//*                                                                  00007200
//SYSDTERM  DD SYSOUT=&OUT                                           00007300
//*                                                                  00007400
//SYSUDUMP  DD SYSOUT=&OUT                                           00007500
//*                                                                  00007600
```

AQSFUPDT - FILE MAINTENANCE WITH TRANSACTION EDITOR

AQSFUPDT is executed to create and maintain the AQDHS-II master file. The process occurs in three stages. First, the input transactions are edited and converted into an internal format. Next, these internal transactions are sorted into file sequence. Finally, the File Maintenance program reads the sorted transactions and uses them to create or maintain the master file.

There are four input files used in the editing phase. The first, defined by DD name AQSTRANS, contains the transactions to be edited. The second, defined by AQSPARAMS, contains the key portion of the parameter, method, and unit codes table. The third, defined by AQSSITES, contains the valid site codes table. The fourth defined by AQSOPTIN, contains the edit options control card. There are three output files created during the editing phase. The first, defined by AQSINTRN, contains the edited internal format transactions. The second, defined by AQSPRINT, contains any diagnostic messages generated during the editing process. The third, defined by AQSCONFR, contains the transaction listing.

Figure 2.2-2.1 shows the formats of the file maintenance transactions.

There are three input files used by the maintenance phase. The first, defined by AQSINTRN, contains the sorted internal format transactions. The second, defined by AQSOLDMS, contains the old AQDHS-II master file to be updated. The third defined by AQSINPUT, contains the file maintenance control card. There are five output files created during the maintenance phase. The first, defined by AQSNEWMS, contains the new AQDHS-II master file. The second, defined by AQSPRINT, contains any diagnostic messages generated during the maintenance process. The third, defined by AQSOLDRC contains a listing of any old master file records which were changed or deleted. The fourth, defined by AQSNEWRC, contains a listing of any new master file records added or changed. The fifth, defined by AQSCONFR, contains a listing of the internal transactions generated by the edit process.

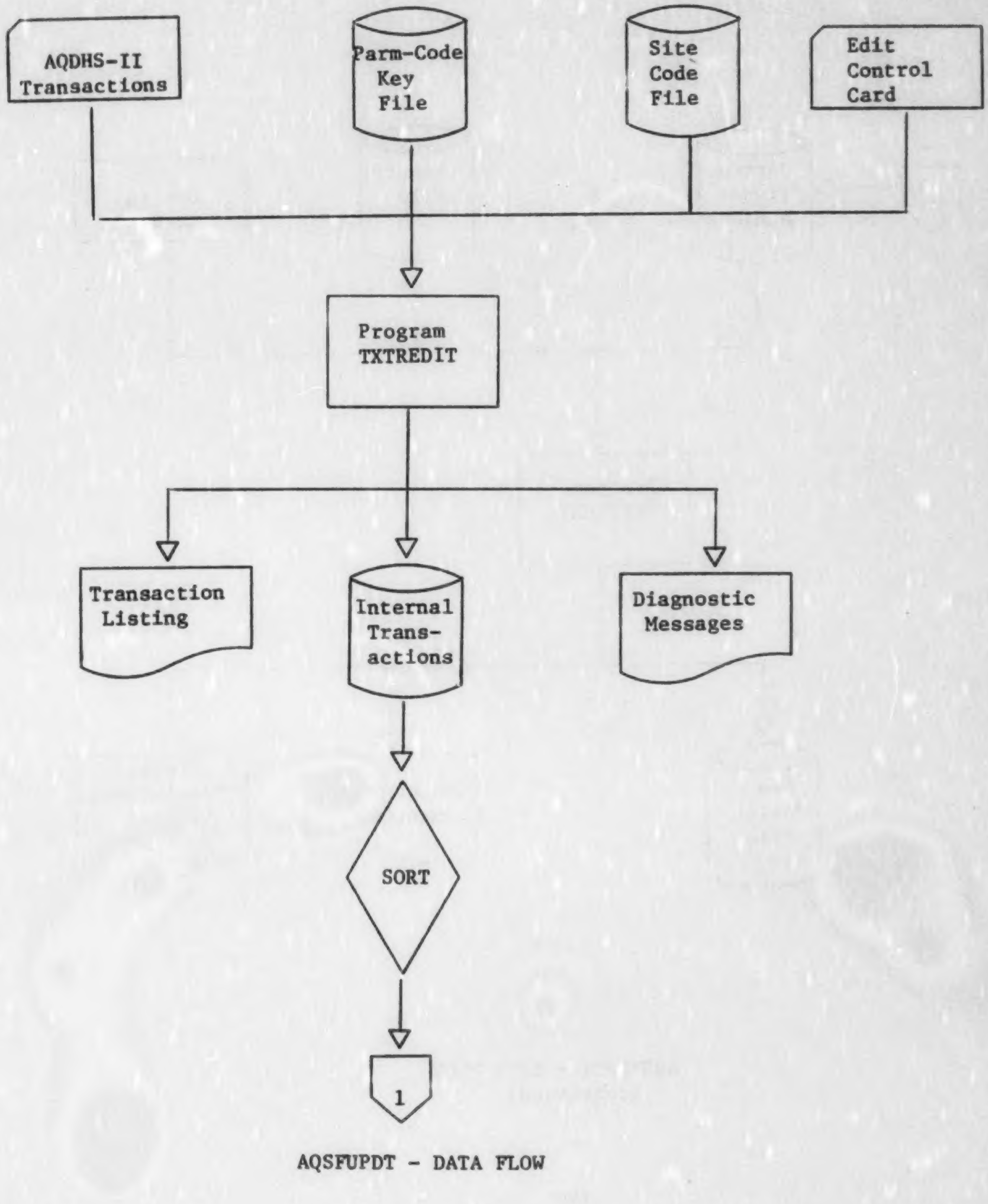
DD NAME	DESCRIPTION
AQSTRANS	AQDHS-II input transactions
AQSPARMS	Key portion of valid parm, method, unit table
AQSSITES	Valid site codes table
AQSOPTIN	Edit option control card
AQSINTRN	AQDHS-II output internal transactions
AQSPRINT	Print file for diagnostic messages
AQSCONFR	Transaction listing
SORTIN	AQDHS-II internal transactions
SORTOUT	Sorted AQDHS-II internal transactions
AQSINTRN	Sorted AQDHS-II internal transactions
AQSOLDMS	Old AQDHS-II master file to be updated
AQSINPUT	File maintenance control card
AQSNEWMS	Updated AQDHS-II master file
AQSPRINT	Print file for diagnostic messages
AQSOLDRC	Old Master listing
AQSNEWRC	New Master listing
AQSCONFR	Internal transaction listing

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROG1	TXTREDIT	Program to edit AQDHS-II file maintenance transactions
PROG2	FXFILMNT	Program to update AQDHS-II master file
OLDMSTR	FTMSTRAA	Lowest level index of AQDHS-II file to be updated
NEWMSTR	FTMSTRAB	Lowest level index of new AQDHS-II master file
PARMKFL	HTPRM1AA	Lowest level index of the key portion of valid parm, method, unit table
SITEFIL	HTSITEAA	Lowest level index of the valid site codes table
UNIT	3330	Unit type upon which the new AQDHS-II master file is to reside
SERIAL	CDHSPK	Volumn serial number of volume upon which AQDHS-II master file is to reside
DISP	'NEW CATLG, DELETE'	Disposition of new AQDHS-II master file

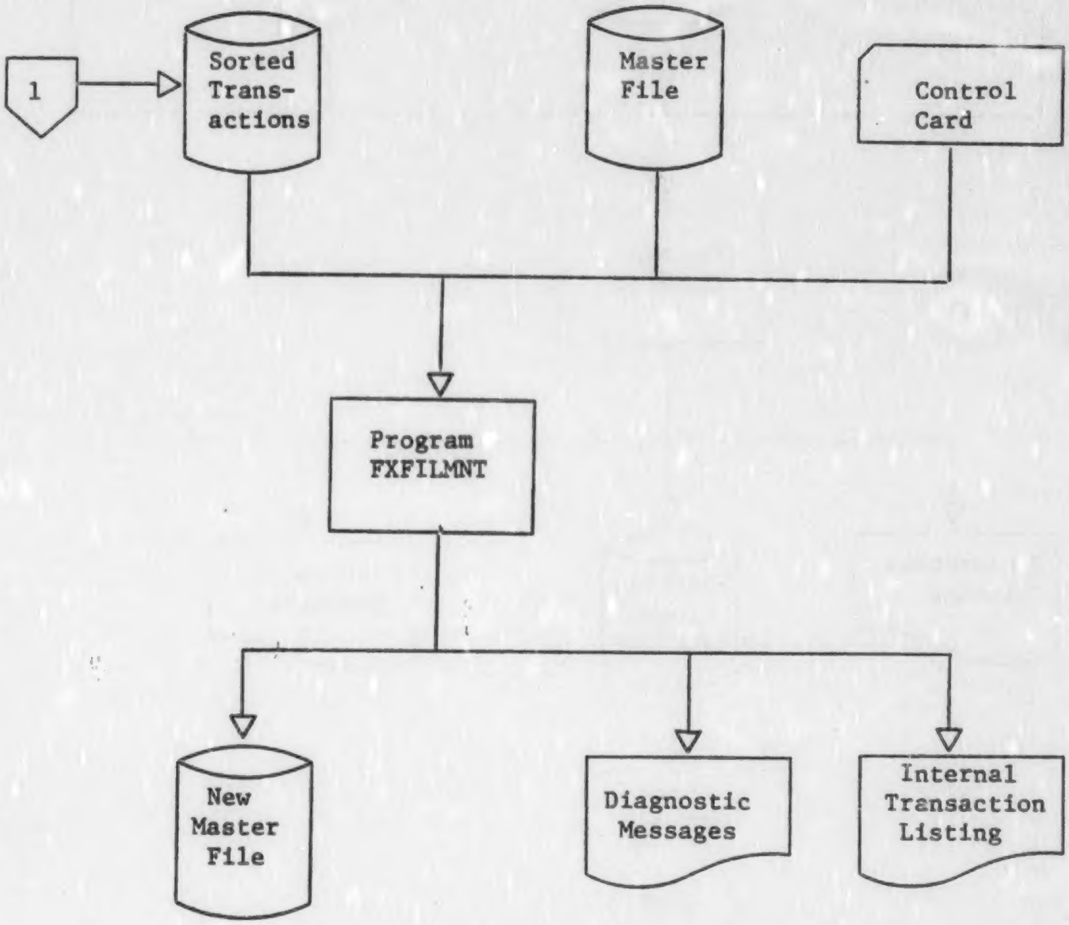
AQSFUPDT - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
SPCUNIT	TRK	Units in which space for the AQDHS-II master file is to be allocated
PRIMARY	20	Number of units to be allocated for the AQDHS-II master file's primary allocation
SECNDRY	10	Number of units to be allocated for the AQDHS-II master file's secondary allocation
TEMP	SYSOUT	Unit type for temporary work space
WORKSPC	50	Number of units to be allocated for temporary work space
SORTCTL	TSORTCTL	Sort control card
OUT	A	Sysout class for all print files

AQSFUPDT - Substitutable Parameters
(continued)



AQSFUPDT - DATA FLOW



AQSFUPDT - DATA FLOW
(continued)

```
//AQSFUPDT PROC PROJECT='CNA087.LMH.CDHS.LHM.AQS',                      00000100
//              PROG1=FXTREDIT,                                         00000200
//              PROG2=FXFILMNT,                                         00000300
//              R1=80K,                                                 00000400
//              R2=60K,                                                 00000500
//              R3=90K,                                                 00000600
//              OLDMSTR=FTMSTRAA,                                       00000700
//              NEWMSTR=FTMSTRAB,                                       00000800
//              PARMKFL=HTPRM1AA,                                       00000900
//              SITEFIL=HTSITEAA,                                       00001000
//              UNIT=3330,                                              00001100
//              SERIAL=CDHSPK,                                          00001200
//              DISP='NEW,CATLG,DELETE',                                00001300
//              SPCUNIT=TRK,                                            00001400
//              PRIMARY=20,                                             00001500
//              SECNDRY=10,                                             00001600
//              TEMP=SYSDA,                                             00001700
//              WORKSPC=50,                                             00001800
//              SORTCTL=TSORTCTL,                                       00001900
//              OUT=A                                                   00002000
//*                                                                     00002100
//EDIT     EXEC PGM=&PROG1,                                             00002200
//              REGION=&R1,                                             00002300
//              TIME=(3,0)                                              00002400
//*                                                                     00002500
//* EDIT AQDHS FILE MAINTENANCE TRANSACTIONS                            00002600
//*                                                                     00002700
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00002800
//              VOLUME=(PRIVATE,RETAIN),                                00002900
//              DISP=(SHR,PASS)                                         00003000
//          DD DSNAME=SYS1.COBLIB,                                      00003100
//              DISP=(SHR,PASS)                                         00003200
//*                                                                     00003300
//* INPUT DATA SET - EDIT OPTIONS CONTROLCARD                           00003400
//*                                                                     00003500
//AQSOPTIN  DD DDNAME=OPTIONS,                                          00003600
//              DCB=BLKSIZE=80                                          00003700
//*                                                                     00003800
//* INPUT DATA SET - AQDHS TRANSACTIONS                                 00003900
```

```
//*
//AQSTRANS  DD DDNAME=INPUT,
//             DCB=BLKSIZE=80
//*
//* INPUT DATA SET - KEY PORTION OF VALID PARM, METH, UNIT TABLE
//*
//AQSPARMS  DD DSNAME=&PROJECT..DATA.&PARMKFL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - VALID SITE CODE TABLE
//*
//AQSSITES  DD DSNAME=&PROJECT..DATA.&SITEFIL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - AQDHS INTERNAL TRANSACTIONS
//*
//AQSINTRN  DD UNIT=&TEMP,
//             DISP=(NEW,PASS,DELETE),
//             SPACE=(TRK,(&WORKSPC),RLSE),
//             DSNAME=&&TRANS
//*
//* OUTPUT DATA SET - TRANSACTION LISTING
//*
//AQSCONFR  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//AQSPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
```

```
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
//SORT     EXEC PGM=IERRCO00,
//             PARM='CORE=40960',
//             REGION=&R2,
//             TIME=(3,0)
//*
//* SORT INTERNAL TRANSACTIONS INTO FILE SEQUENCE
//*
//SORTLIB   DD DSNAME=SYS1.SORTLIB,
//             DISP=(SHR,PASS)
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SORTWK01  DD UNIT=&TEMP,
//             SPACE=(TRK,(&WORKSPC),,CONTIG)
//*
//SORTWK02  DD  UNIT=(&TEMP,SEP=SORTWK01),
//             SPACE=(TRK,(&WORKSPC),,CONTIG)
//*
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),
//             SPACE=(TRK,(&WORKSPC),,CONTIG)
//*
//SORTIN    DD DSNAME=&&TRANS,
//             DISP=(OLD,DELETE)
//*
//SORTOUT   DD UNIT=&TEMP,
//             DISP=(NEW,PASS,DELETE),
//             SPACE=(TRK,(&WORKSPC),RLSE),
//             DSNAME=&&SORTED,
//             DCB=(RECFM=FB,LRECL=68,BLKSIZE=1632)
//*
//SYSIN     DD DSNAME=&PROJECT..SYSIN(&SORTCTL),
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//UPDATE  EXEC PGM=&PROG2,
//             REGION=&R3,
//             TIME=(3,0)
```

```
//*                                                                     00012000
//* MAINTAIN AUDHS MASTER FILE                                          00012100
//*                                                                     00012200
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00012300
//             VOLUME=(PRIVATE,RETAIN),                                 00012400
//             DISP=(SHR,PASS)                                          00012500
//          DD DSNAME=SYS1.COBLIB,                                      00012600
//             DISP=(SHR,PASS)                                          00012700
//*                                                                     00012800
//* INPUT DATA SET - FILE MAINTENANCE CONTROL CARD                      00012900
//*                                                                     00013000
//AUSINPUT  DD DDNAME=INPUT,                                            00013100
//             DCB=BLKSIZE=80                                           00013200
//*                                                                     00013300
//* INPUT DATA SET - SORTED INTERNAL TRANSACTIONS                       00013400
//*                                                                     00013500
//AUSINTRN  DD DSNAME=&&SORTED,                                         00013600
//             DISP=(OLD,DELETE)                                        00013700
//*                                                                     00013800
//* INPUT DATA SET - AUDHS OLD MASTER FILE                              00013900
//*                                                                     00014000
//AUSOLDMS  DD DSNAME=&PROJECT..DATA.&OLDMSTR,                          00014100
//             VOLUME=(PRIVATE,RETAIN),                                 00014200
//             DISP=(SHR,PASS)                                          00014300
//*                                                                     00014400
//* OUTPUT DATA SET - AUDHS NEW MASTER FILE                             00014500
//*                                                                     00014600
//AUSNEWMS  DD UNIT=&UNIT,                                              00014700
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                     00014800
//             DISP=(&DISP),                                            00014900
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),               00015000
//             DSNAME=&PROJECT..DATA.&NEWMSTR                           00015100
//*                                                                     00015200
//* OUTPUT DATA SET - INTERNAL TRANSACTION LISTING                      00015300
//*                                                                     00015400
//AUSCONFR  DD SYSOUT=&OUT                                              00015500
//*                                                                     00015600
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                               00015700
//*                                                                     00015800
//AUSPRINT  DD SYSOUT=&OUT                                              00015900
```

```
//*
//* OUTPUT DATA SET - OLD MASTER LISTING
//*
//AQSOLDRC  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - NEW MASTER LISTING
//*
//AQSNEWRC  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
```

AQSHUPD1 - PARAMETER CODE TABLE MAINTENANCE

AQSHUPD1 is executed to create or maintain the parameter, method, unit codes tables. The process occurs in two phases. First, the transactions are sorted into table sequence and then the actual maintenance takes place.

There are three input files used in the maintenance phase. The first, defined by DD name AQSCARDS, contains the sorted table maintenance transactions. The second, defined by AQSOLDT1, contains the key portion of the parameter, method, unit codes table to be updated. The third, defined by AQSOLDT2, contains the description portion of the same table. Three output files are created during this phase. The first, defined by AQSNEWT1, contains the key portion of the new parameter, method, unit codes table. The second, defined by AQSNEWT2, contains the description portion of the new table. The third, defined by AQSPRINT, contains any diagnostic messages generated during the table maintenance.

Figure 4.1.4 shows the formats of the parameter code table maintenance transactions.

DD NAME	DESCRIPTION
AQSCARDS	Control card
AQSOLDT1	Old master key portion parameter code table
AQSOLDT2	Old master description portion parameter code table
AQSNEWT1	New master key portion parameter code table
AQSNEWT2	New master description portion parameter code table
AQSPRINT	Print file for diagnostic messages

AQSHUPD1 - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	HXTABLE1	Program to generate parameter code table
OLDMST1	HTPRM1AA	Lowest level index of old key portion parameter code table
OLDMST2	HTPRM2AA	Lowest level index of old description portion parameter code table
NEWMST1	HTPRM1AB	Lowest level index of new key portion parameter code table
NEWMST2	HTPRM2AB	Lowest level index of new description portion parameter code table
UNIT1	2314	Unit type upon which the new key portion parameter code table is to reside
UNIT2	2314	Unit type upon which the new description is to reside
SERIAL1	009858	Volume serial number of volume upon which key portion parameter code table is to reside
SERIAL2	009858	Volume serial number of volume upon which description portion parameter code table is to reside

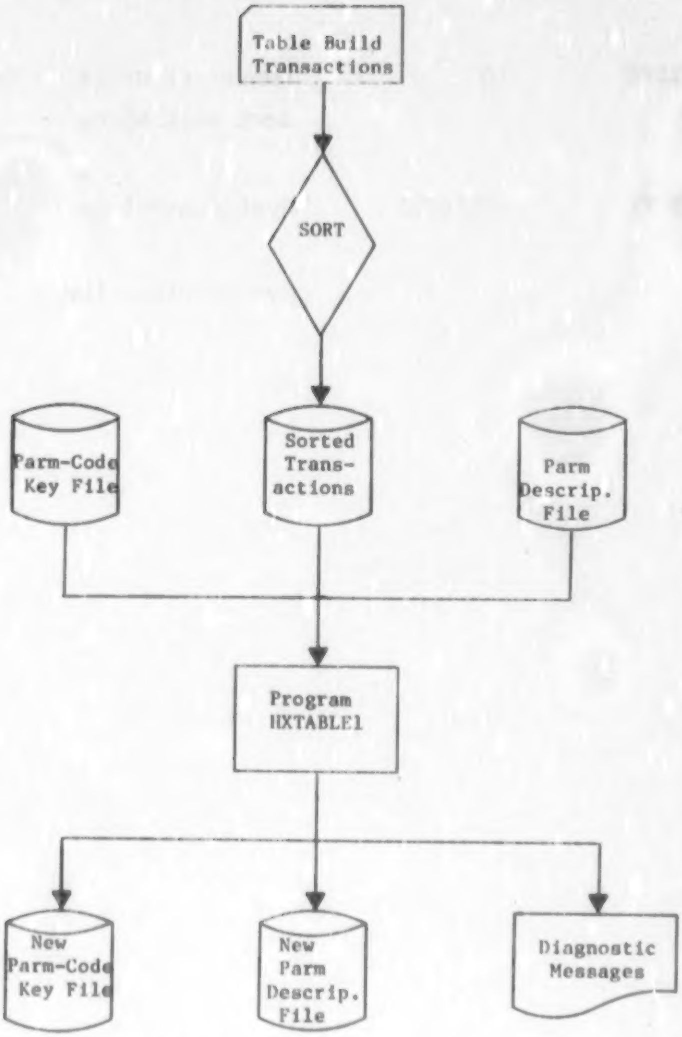
AQSHUPD1 - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
DISP1	'NEW,CATLG, DELETE'	Disposition of new key portion parameter code table
DISP2	'NEW,CATLG, DELETE'	Disposition of new description portion parameter code table
SPUNIT1	TRK	Units in which space for the key portion parameter code table is to be allocated
SPUNIT2	TRK	Units in which space for the description portion parameter code table is to be allocated
PRIMRY1	10	Number of units to be allocated for the key portion parameter code table's primary allocation
PRIMRY2	10	Number of units to be allocated for the description portion parameter code table's primary allocation
SCNDRY1	5	Number of units to be allocated for the key portion parameter code table's secondary allocation
SCNDRY2	5	Number of units to be allocated for the description portion parameter code table's secondary allocation

AQSHUPD1 - Substitutable Parameters
(continued)

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
TEMP	SYSOUT	Unit type for temporary work space
SORTSPC	10	Number of units to be allocated for the sort work space
SORTCTL	HSRTCTL1	Sort control card
OUT	A	Sysout class for all print files

AQSHUPD1 - Substitutable Parameters
(continued)



AQSHUPD1 - Data Flow

```
//*            AQSHUPD1                 HURLEY RF        WF4   06/30/74 00000100
//*                                                                     00000200
//AQSHUPD1 PROC PROJECT='CDHS.AQS',                                     00000300
//             PROGRAM=HXTABLE1,                                        00000400
//             OLDMST1=HTPRM1AA,                                        00000500
//             OLDMST2=HTPRM2AA,                                        00000600
//             NEWMST1=HTPRM1AB,                                        00000700
//             NEWMST2=HTPRM2AB,                                        00000800
//             UNIT1=2314,                                              00000900
//             UNIT2=2314,                                              00001000
//             SERIAL1=CC9858,                                          00001100
//             SERIAL2=CC9858,                                          00001200
//             DISP1='NEW,CATLG,DELETE',                                00001300
//             DISP2='NEW,CATLG,DELETE',                                00001400
//             SPUNIT1=TRK,                                             00001500
//             SPUNIT2=TRK,                                             00001600
//             PRIMRY1=10,                                              00001700
//             PRIMRY2=10,                                              00001800
//             SCNDRY1=5,                                               00001900
//             SCNDRY2=5,                                               00002000
//             TEMP=SYSOUT,                                             00002100
//             SORTSPC=10,                                              00002200
//             SORTCTL=HSRTCTL1,                                        00002300
//             OUT=A                                                    00002400
//*                                                                     00002500
//SORT    EXEC PGM=IERRCO00,                                            00002600
//             REGION=60K,                                              00002700
//             TIME=(1,0)                                               00002800
//*                                                                     00002900
//* SORT INCOMING TRANSACTIONS INTO FILE SEQUENCE                       00003000
//*                                                                     00003100
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                     00003200
//             DISP=(SHR,PASS)                                          00003300
//*                                                                     00003400
//SYSOUT    DD SYSOUT=&OUT                                              00003500
//*                                                                     00003600
//SORTWK01  DD UNIT=&TEMP,                                              00003700
//             SPACE=(TRK,&SORTSPC,,CONTIG)                             00003800
//*                                                                     00003900
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),                               00004000
//             SPACE=(TRK,&SORTSPC,,CONTIG)                             00004100
//*                                                                     00004200
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),                    00004300
//             SPACE=(TRK,&SORTSPC,,CONTIG)                             00004400
//*                                                                     00004500
//SORTIN    DD DDNAME=INPUT,                                            00004600
//             DCB=BLKSIZE=80                                           00004700
//*                                                                     00004800
//SORTOUT   DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02,SORTWK03)),           00004900
//             DISP=(NEW,PASS,DELETE),                                  00005000
//             SPACE=(TRK,&SORTSPC,RLSE),                               00005100
//             DSNAME=&&TRANS,                                          00005200
//             DCB=(RECFM=F,LRECL=80,BLKSIZE=80)                        00005300
//*                                                                     00005400
//SYSIN     DD DSNAME=&PROJECT..SYSIN(&SORTCTL),                        00005500
//             VOLUME=(PRIVATE,RETAIN),                                 00005600
//             DISP=(SHR,PASS)                                          00005700
//*                                                                     00005800
```

AQSMUPD1

```
//UPDATE   EXEC PGM=&PROGRAM,                                          00005900
//              REGION=60K,                                            00006000
//              TIME=(1,0)                                             00006100
//*                                                                    00006200
//* MAINTAIN PARAMETER, METHOD, UNIT, MIN DETECTABLE TABLES            00006300
//*                                                                    00006400
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                  00006500
//              VOLUME=(PRIVATE,RETAIN),                               00006600
//              DISP=(SHR,PASS)                                        00006700
//          DD DSNAME=SYS1.ANS.COPSUBR,                                00006800
//              DISP=(SHR,PASS)                                        00006900
//*                                                                    00007000
//* INPUT DATA SET - CONTROL CARD AND, OPTIONALLY, TRANSACTIONS        00007100
//*                                                                    00007200
//AQSCARDS  DD DSNAME=&&TRANS,                                         00007300
//              DISP=(OLD,DELETE)                                      00007400
//*                                                                    00007500
//* INPUT DATA SET - OLD MASTER KEY PORTION TABLE                      00007600
//*                                                                    00007700
//AQSOLDT1  DD DSNAME=&PROJECT..DATA.&OLDMST1,                         00007800
//              VOLUME=(PRIVATE,RETAIN),                               00007900
//              DISP=(SHR,PASS)                                        00008000
//*                                                                    00008100
//* INPUT DATA SET - OLD MASTER DESCRIPTION PORTION TABLE              00008200
//*                                                                    00008300
//AQSOLDT2  DD DSNAME=&PROJECT..DATA.&OLDMST2,                         00008400
//              VOLUME=(PRIVATE,RETAIN),                               00008500
//              DISP=(SHR,PASS)                                        00008600
//*                                                                    00008700
//* OUTPUT DATA SET - NEW MASTER KEY PORTION TABLE                     00008800
//*                                                                    00008900
//AQSNEWT1  DD UNIT=&UNIT1,                                            00009000
//              VOLUME=(PRIVATE,RETAIN,SER=&SERIAL1),                  00009100
//              DISP=(&DISP1),                                         00009200
//              SPACE=(&SFUNIT1,(&PRIMRY1,&SCNDRY1),RLSE),             00009300
//              DSNAME=&PROJECT..DATA.&NEWMST1                         00009400
//*                                                                    00009500
//* OUTPUT DATA SET - NEW MASTER DESCRIPTION PORTION TABLE             00009600
//*                                                                    00009700
//AQSNEWT2  DD UNIT=&UNIT2,                                            00009800
//              VOLUME=(PRIVATE,RETAIN,SER=&SERIAL2),                  00009900
//              DISP=(&DISP2),                                         00010000
//              SPACE=(&SFUNIT2,(&PRIMRY2,&SCNDRY2),RLSE),             00010100
//              DSNAME=&PROJECT..DATA.&NEWMST2                         00010200
//*                                                                    00010300
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                              00010400
//*                                                                    00010500
//AQSPRINT  DD SYSOUT=&OUT                                             00010600
//*                                                                    00010700
//* OUTPUT DATA SETS - SYSTEM OPERATION                                00010800
//*                                                                    00010900
//SYSPRINT  DD SYSOUT=&OUT                                             00011000
//*                                                                    00011100
//SYSOUT    DD SYSOUT=&OUT                                             00011200
//*                                                                    00011300
//SYSUDUMP  DD SYSOUT=&OUT                                             00011400
//*                                                                    00011500
//SYSDTERM  DD SYSOUT=&OUT                                             00011600
```

```
ACSHUPD1
          //*                                                                   00011700
          //SYSUDUMP  DD SYSOUT=&OUT                                            00011800
          //*                                                                   00011900
```

AQSHUPD2 - SITE CODE TABLE MAINTENANCE

AQSHUPD2 is executed to create and maintain the valid site codes table. The process occurs in two stages. First, the transactions are sorted into table sequence and then the actual maintenance takes place.

The maintenance phase uses two input files. The first, defined by DD name AQSTRANS, contains the sorted transactions. The second, defined by AQSOLDMS, contains the old valid site codes table. There are two output files created during the maintenance phase. The first, defined by AQSNEWMS, contains the new valid site codes table. The second, defined by AQSPRINT, contains any diagnostic messages generated during the maintenance process.

Figure 4.2.4 shows the format of the site code table maintenance transaction.

DD NAME	DESCRIPTION
AQSTRANS	Site code input transactions
AQSOLDMS	Old valid site codes table
AQSNEWMS	New valid site codes table
AQSPRINT	Print file for diagnostic messages

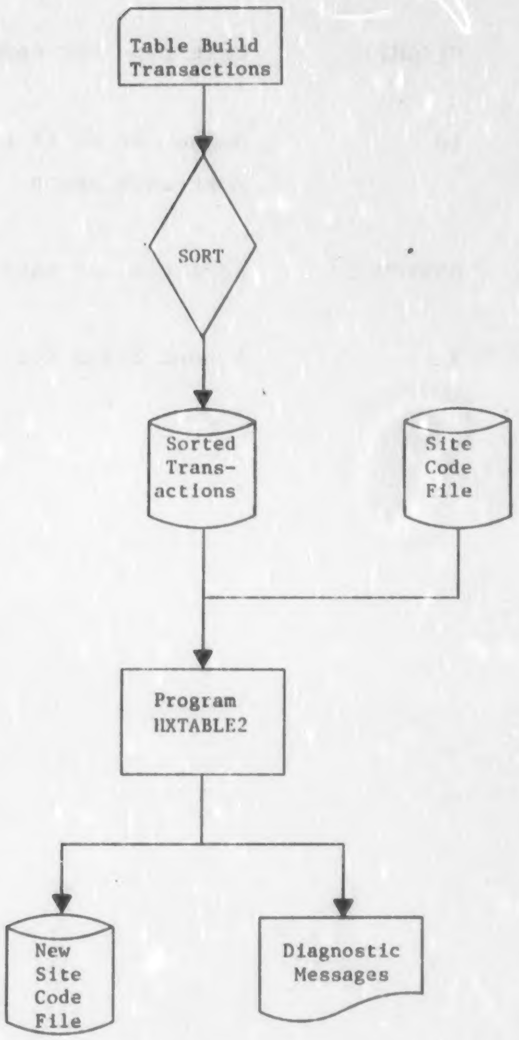
AQSHUPD2 - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	HXTABLE2	Program to generate valid site codes table
OLDMSTR	HTSITEAA	Lowest level index of the valid site codes table
NEWMSTR	HTSITEAB	Lowest level index of the new valid site codes table
UNIT	2314	Unit type upon which the new valid site codes table is to reside
SERIAL	009858	Volume serial number of volume upon which valid site codes table is to reside
DISP	'NEW,CATLG, DELETE'	Disposition of new valid site codes table
SPCUNIT	TRK	Units in which space for the valid site codes table is to be allocated
PRIMARY	10	Number of units to be allocated for the valid site codes table's primary allocation
SECNDRY	5	Number of units to be allocated for the valid site codes table's secondary allocation

AQSHUPD2 - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
TEMP	SYSOUT	Unit type for temporary work space
SORTSPC	10	Number of units to be allocated for the sort work space
SORTCTL	HSRTCTL2	Sort control card
OUT	A	Sysout class for all print files

AQSHUPD2 - Substitutable Parameters
(continued)



AQSHUPD2 - Data Flow

```
//*             AQSHUPD2                 HURLEY RF         WF4   06/30/74
//*
//AQSHUPD2 PROC PROJECT='CCHS.AQS',
//             PROGRAM=HXTABLE2,
//             OLDMSTR=HTSITEAA,
//             NEWMSTR=HTSITEAB,
//             UNIT=2314,
//             SERIAL=CC9859,
//             DISP='NEW,CATLG,DELETE',
//             SPCUNIT=TRK,
//             PRIMARY=10,
//             SECNDRY=5,
//             TEMP=SYSOUT,
//             SORTSPC=10,
//             SORTCTL=HSRTCTL2,
//             OUT=A
//*
//SORT     EXEC PGM=IERRCO00,
//             REGION=60K,
//             TIME=(1,0)
//*
//* SORT INCOMING TRANSACTIONS INTO FILE SEQUENCE
//*
//SORTLIB   DD DSNAME=SYS1.SORTLIB,
//             DISP=(SHR,PASS)
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SORTWK01  DD UNIT=&TEMP,
//             SPACE=(TRK,&SORTSPC,,CONTIG)
//*
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),
//             SPACE=(TRK,&SORTSPC,,CONTIG)
//*
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),
//             SPACE=(TRK,&SORTSPC,,CONTIG)
//*
//SORTIN    DD DDNAME=INPUT,
//             DCB=BLKSIZE=80
//*
//SORTOUT   DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02,SORTWK03)),
//             DISP=(NEW,PASS,DELETE),
//             SPACE=(TRK,&SORTSPC,RLSE),
//             DSNAME=&&TRANS,
//             DCB=(RECFM=F,LRECL=80,BLKSIZE=80)
//*
//SYSIN     DD DSNAME=&PROJECT..SYSIN(&SORTCTL),
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//UPDATE   EXEC PGM=&PROGRAM,
//             REGION=60K,
//             TIME=(1,0)
//*
//* MAINTAIN VALID SITE CODE TABLE
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
```

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```
//               DISP=(SHR,PASS)
//            DD DSNAME=SYS1.ANS.COBSLBR,
//               DISP=(SHR,PASS)
//*
//* INPUT DATA SET - TRANSACTIONS
//*
//ACSTRANS  DD DSNAME=&&TRANS,
//             DISP=(OLD,DELETE)
//*
//* INPUT DATA SET - OLD VALID SITE CODE TABLE
//*
//ACSOLDMS  DD DSNAME=&PROJECT..DATA.&OLDMSTR,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - NEW VALID SITE CODE TABLE
//*
//ACSNEWMS  DD UNIT=&UNIT,
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),
//             DISP=(&DISP),
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),
//             DSNAME=&PROJECT..DATA.&NEWMSTR
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//ACSPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSCTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
```

AQSHUPD3 - PARAMETER STANDARDS TABLE MAINTENANCE

AQSHUPD3 is executed to create and maintain the parameter standards table. The process occurs in two phases. First, the transactions are sorted into table sequence and then the actual maintenance takes place.

The maintenance phase uses two input files. The first, defined by DD name AQSCARDS, contains the sorted transactions. The second, defined by AQSOLDTB, contains the old parameter standards table. There are two output files created during the maintenance phase. The first, defined by AQSSTDTB, contains the new parameter standards table. The second, defined by AQSPRINT, contains any diagnostic messages generated during the maintenance process.

Figure 4.3.4 shows the format of the parameter standards table maintenance transaction.

DD NAME	DESCRIPTION
AQSCARDS	Parameter standards input transactions
AQSOLDTB	Old standards table
AQSSTDTB	New standards table
AQSPRINT	Print file for diagnostic messages

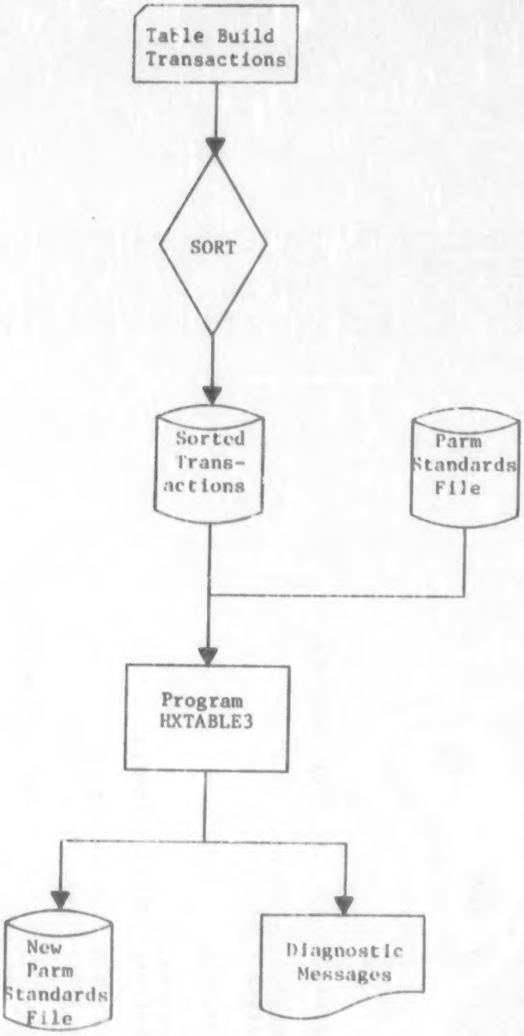
AQSHUPD3 - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	HXTABLE3	Program to generate standards table
OLDMSTR	HTSTNDAA	Lowest level index of the standards table
UNIT	2314	Unit type upon which the new standards table is to reside
SERIAL	009858	Volume serial number of volume upon which standards table is to reside
DISP	'NEW,CATLG, DELETE'	Disposition of the new standards table
SPCUNIT	TRK	Units in which space for the standards is to be allocated
PRIMARY	10	Number of units to be allocated for standards table's primary allocation
SECNDRY	5	Number of units to be allocated for standards table's secondary allocation
TEMP	SYSOUT	Unit type for temporary work area
SORTSPC	10	Number of units to be allocated for the sort work space

AQSHUPD3 - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
SORTCTL	HSRTCTL3	Sort control card
OUT	A	Sysout class for all print files

AQSHUPD3 - Substitutable Parameters
(continued)



AQSHUPD3 - Data Flow

```
//*               AOSHUPD3                  HURLEY RF          WF4    06/30/74 00000100
//*                                                                            00000200
//AOSHUPD3 PROC PROJECT='CDHS.AOS',                                            00000300
//              PROGRAM=HXTABLE3,                                              00000400
//              OLDMSTR=HTSTNDAA,                                              00000500
//              NEWMSTR=HTSTNDAB,                                              00000600
//              UNIT=2314,                                                     00000700
//              SERIAL=CC9858,                                                 00000800
//              DISP='NEW,CATLG,DELETE',                                       00000900
//              SPCUNIT=TRK,                                                   00001000
//              PRIMARY=10,                                                    00001100
//              SECNDRY=5,                                                     00001200
//              TEMP=SYSOUT,                                                   00001300
//              SORTSPC=10,                                                    00001400
//              SORTCTL=HSRTCTL3,                                              00001500
//              OUT=A                                                          00001600
//*                                                                            00001700
//SORT     EXEC PGM=IERRCO00,                                                  00001800
//              REGION=60K,                                                    00001900
//              TIME=(1,0)                                                     00002000
//*                                                                            00002100
//* SORT INCOMING TRANSACTIONS INTO FILE SEQUENCE                              00002200
//*                                                                            00002300
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                            00002400
//              DISP=(SHR,PASS)                                                00002500
//*                                                                            00002600
//SYSOUT    DD SYSOUT=&OUT                                                     00002700
//*                                                                            00002800
//SORTWK01  DD UNIT=&TEMP,                                                     00002900
//              SPACE=(TRK,&SORTSPC,,CONTIG)                                   00003000
//*                                                                            00003100
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),                                      00003200
//              SPACE=(TRK,&SORTSPC,,CONTIG)                                   00003300
//*                                                                            00003400
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),                           00003500
//              SPACE=(TRK,&SORTSPC,,CONTIG)                                   00003600
//*                                                                            00003700
//SORTIN    DD DDNAME=INPUT,                                                   00003800
//              DCB=BLKSIZE=80                                                 00003900
//*                                                                            00004000
//SORTOUT   DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02,SORTWK03)),                  00004100
//              DISP=(NEW,PASS,DELETE),                                        00004200
//              SPACE=(TRK,&SORTSPC,RLSE),                                     00004300
//              DSNAME=&&TRANS,                                                00004400
//              DCB=(RECFM=F,LRECL=80,BLKSIZE=80)                              00004500
//*                                                                            00004600
//SYSIN     DD DSNAME=&PROJECT..SYSIN(&SORTCTL),                               00004700
//              VOLUME=(PRIVATE,RETAIN),                                       00004800
//              DISP=(SHR,PASS)                                                00004900
//*                                                                            00005000
//UPDATE   EXEC PGM=&PROGRAM,                                                  00005100
//              REGION=60K,                                                    00005200
//              TIME=(1,0)                                                     00005300
//*                                                                            00005400
//* MAINTAIN PARAMETER STANDARDS TABLE                                         00005500
//*                                                                            00005600
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                          00005700
//              VOLUME=(PRIVATE,RETAIN),                                       00005800
```

```
AQSHUPD3
          //             DISP=(SHR,PASS)                                     00005900
          //          DD DSNAME=SYS1.ANS.COBSUBR,                            00006000
          //             DISP=(SHR,PASS)                                     00006100
          //*                                                                00006200
          //* INPUT DATA SET - TRANSACTIONS                                  00006300
          //*                                                                00006400
          //AQSCARDS  DD DSNAME=&&TRANS,                                     00006500
          //             DISP=(OLD,DELETE)                                   00006600
          //*                                                                00006700
          //* INPUT DATA SET - OLD STANDARDS TABLE                           00006800
          //*                                                                00006900
          //AQSOLDTB  DD DSNAME=&PROJECT..DATA.&OLDMSTR,                     00007000
          //             VOLUME=(PRIVATE,RETAIN),                            00007100
          //             DISP=(SHR,PASS)                                     00007200
          //*                                                                00007300
          //* OUTPUT DATA SET - NEW STANDARDS TABLE                          00007400
          //*                                                                00007500
          //AQSSTDTB  DD UNIT=&UNIT,                                         00007600
          //             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                00007700
          //             DISP=(&DISP),                                       00007800
          //             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),          00007900
          //             DSNAME=&PROJECT..DATA.&NEWMSTR                      00008000
          //*                                                                00008100
          //* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                          00008200
          //*                                                                00008300
          //AQSPRINT  DD SYSOUT=&OUT                                         00008400
          //*                                                                00008500
          //* OUTPUT DATA SETS - SYSTEM OPERATION                            00008600
          //*                                                                00008700
          //SYSPRINT  DD SYSOUT=&OUT                                         00008800
          //*                                                                00008900
          //SYSOUT    DD SYSOUT=&OUT                                         00009000
          //*                                                                00009100
          //SYSCPOUT  DD SYSOUT=&OUT                                         00009200
          //*                                                                00009300
          //SYSDTERM  DD SYSOUT=&OUT                                         00009400
          //*                                                                00009500
          //SYSUDUMP  DD SYSOUT=&OUT                                         00009600
          //*                                                                00009700
```

AQSIAVGS - SLIDING AVERAGE

AQSIAVGS is executed to calculate a sliding average for the readings in the records and to produce a file of the sliding averages to be listed by the detail list report. There are two input files used by this program. The first, defined by AQSINPUT, contains the control card required by the program. The second, defined by AQSMASTR, contains the sliding average answer file to be processed. There are two output files created by this program. The first, defined by AQSVALUE, contains the file of sliding averages to be listed by the detail list program. The second, defined by AQSPRINT, contains any diagnostic messages generated.

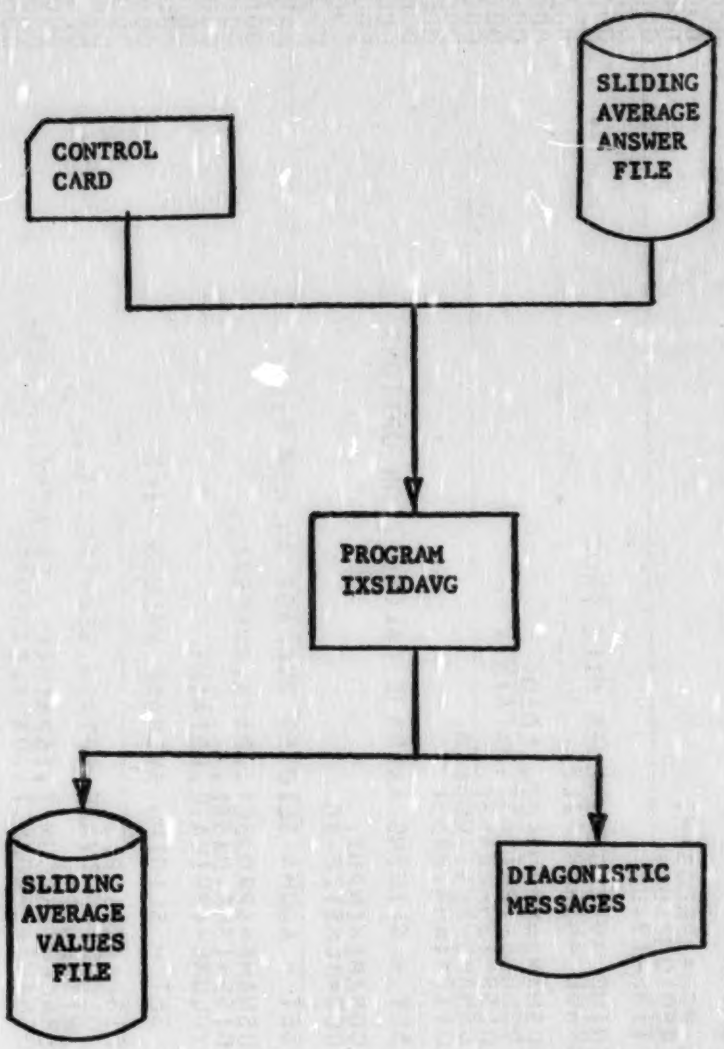
Figure 7.2.2 shows the format of the sliding average control card.

DD NAME	DESCRIPTION
AQSINPUT	AQDHS control card
AQSMASTR	AQDHS answer file
AQSPRINT	Print file for diagnostic listing
AQSVALUE	File containing sliding Average Values

AQSIAVGS - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	IXSLDAVG	This program computes sliding averages and creates a sliding average values file.
MSTRFIL	RTANSRAA	Lowest level index of the AQDHS answer file
ANSWRFL	ITSLDAAA	Lowest level index of the sliding average values file
OUT	A	Sysout class for all print files

AQSIAVGS - Substitutable Parameters



AQSIAVGS - Data Flow

```
//*              AQSIAVGS                      HURLEY RF      WF4    01/31/77      00000100
//*                                                                               00000200
//AQSIAVGS PROC  PROJECT='CNA087.LMH.CDHS.HQ.AQS',                                 00000300
//               PROGRAM=IXSLDAVG,                                                00000400
//               MSTRFIL=RTANSRAA,                                                00000500
//               ANSWRFL=ITSLDAAA,                                                00000600
//               UNIT=3330,                                                       00000700
//               SERIAL=CDHSPK,                                                   00000800
//               DISP='NEW,PASS,DELETE',                                          00000900
//               SPCUNIT=TRK,                                                     00001000
//               PRIMARY=20,                                                      00001100
//               SECNDRY=10,                                                      00001200
//               OUT=A                                                            00001300
//*                                                                               00001400
//AVERAGE  EXEC PGM=&PROGRAM,                                                     00001500
//              REGION=60K,                                                       00001600
//              TIME=(3,0)                                                        00001700
//*                                                                               00001800
//* COMPUTE SLIDING AVERAGE VALUES FILE FROM                                      00001900
//* SLIDING AVERAGE ANSWER FILE                                                   00002000
//*                                                                               00002100
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                             00002200
//             VOLUME=(PRIVATE,RETAIN),                                           00002300
//             DISP=(SHR,PASS)                                                    00002400
//          DD DSNAME=SYS1.COBLIB,                                                00002500
//             DISP=(SHR,PASS)                                                    00002600
//*                                                                               00002700
//* INPUT DATA SET - SLIDING AVERAGE CALCULATION OPTIONS                          00002800
//*                                                                               00002900
//AQSINPUT  DD DDNAME=INPUT,                                                      00003000
//             DCB=BLKSIZE=80                                                     00003100
//*                                                                               00003200
//* INPUT DATA SET - AQDHS SLIDING AVERAGE ANSWER FILE                            00003300
//*                                                                               00003400
//AQSMASTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,                                    00003500
//             DISP=(SHR,PASS),                                                   00003600
//             VOLUME=(PRIVATE,RETAIN)                                            00003700
//*                                                                               00003800
//* OUTPUT DATA SET - SLIDING AVERAGE VALUES FILE                                 00003900
//*                                                                               00004000
//AQSVALUE  DD DISP=(&DISP),                                                      00004100
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                               00004200
//             UNIT=&UNIT,                                                        00004300
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),                         00004400
//             DSNAME=&PROJECT..DATA.&ANSWRFL                                     00004500
//*                                                                               00004600
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                         00004700
//*                                                                               00004800
//AQSPRINT  DD SYSOUT=&OUT                                                        00004900
//*                                                                               00005000
//* OUTPUT DATA SETS - SYSTEM OPERATION                                           00005100
//*                                                                               00005200
//SYSPRINT  DD SYSOUT=&OUT                                                        00005300
//*                                                                               00005400
//SYSOUT    DD SYSOUT=&OUT                                                        00005500
//*                                                                               00005600
```

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```
AQSIAVGS
        //SYSDBOUT  DD SYSOUT=&OUT                                  00005700
        //*                                                         00005800
        //SYSDTERM  DD SYSOUT=&OUT                                  00005900
        //*                                                         00006000
        //SYSUDUMP  DD SYSOUT=&OUT                                  00006100
        //*                                                         00006200
```

AQSMSENT - ANSWER FILE FLAGGING

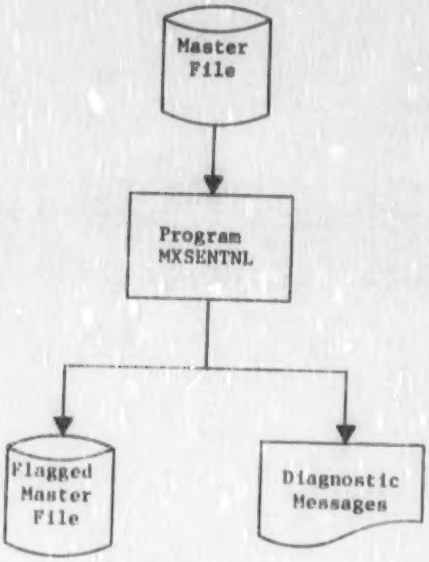
AQSMSENT is executed to append an end-of-file sentinel record to the AQDHS master or answer file before it is input to Data Analysis. The input to the program consists of the AQDHS master of answer file and is defined by DD name AQSMASTR. There are two output files created by this program. The first, defined by AQSENTNL, contains the flagged file. The second, defined by AQSPRINT, contains any diagnostic messages generated during the flagging process.

DD NAME	DESCRIPTION
AQSMASTR	AQDHS master file
AQSENTNL	Flagged AQDHS master file
AQSPRINT	Print file for diagnostic messages

AQSMSENT - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	MXSENTNL	Program to copy master file and append end-of-file sentinel record
MSTRFIL	FTMSTRAA	Lowest level index of master file
STATFIL	MTMSTRAA	Lowest level index of flagged file
UNIT	2314	Unit type upon which the flagged file is to reside
SERIAL	009858	Volume serial number of volume upon which flagged file is to reside
DISP	'NEW,CATLG, DELETE'	Disposition of flagged file
SPCUNIT	TRK	Units in which space for the flagged file is to be allocated
PRIMARY	20	Number of units to be allocated for the flagged file's primary allocation
SECNDRY	10	Number of units to be allocated for the flagged file's secondary allocation
OUT	A	Sysout class for all print files

AQSMSENT - Substitutable Parameters



AQSMSENT - Data Flow

```
//*             AQSMSENT                     HURLEY RF          WF4    06/30/74 00000100
//*                                                                           00000200
//AQSMSENT PROC PROJECT='COHS.AQS',                                           00000300
//              PROGRAM=MXSENTNL,                                             00000400
//              MSTRFIL=FTMSTRAA,                                             00000500
//              STATFIL=MTMSTRAA,                                             00000600
//              UNIT=2314,                                                    00000700
//              SERIAL=CC9858,                                                00000800
//              DISP='NEW,PASS,DELETE',                                       00000900
//              SPCUNIT=TRK,                                                  00001000
//              PRIMARY=20,                                                   00001100
//              SECNDRY=10,                                                   00001200
//              OUT=A                                                         00001300
//*                                                                           00001400
//SENTINEL  EXEC PGM=&PROGRAM,                                                00001500
//              REGION=60K,                                                   00001600
//              TIME=(1,0)                                                    00001700
//*                                                                           00001800
//* COPY MASTER FILE AND APPEND SENTINEL RECORD                               00001900
//*                                                                           00002000
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                         00002100
//              VOLUME=(PRIVATE,RETAIN),                                      00002200
//              DISP=(SHR,PASS)                                               00002300
//          DD DSNAME=SYS1.ANS.COBSUBR,                                       00002400
//              DISP=(SHR,PASS)                                               00002500
//*                                                                           00002600
//* INPUT DATA SET - ACEHS MASTER FILE                                        00002700
//*                                                                           00002800
//AQSMASTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,                                00002900
//              VOLUME=(PRIVATE,RETAIN),                                      00003000
//              DISP=(SHR,PASS)                                               00003100
//*                                                                           00003200
//* OUTPUT DATA SET - FLAGGED MASTER FILE                                     00003300
//*                                                                           00003400
//ACSENTNL  DD UNIT=&UNIT,                                                    00003500
//              VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                          00003600
//              DISP=(&DISP),                                                 00003700
//              SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),                    00003800
//              DSNAME=&PROJECT..DATA.&STATFIL                                00003900
//*                                                                           00004000
//* OUTPUT DATA SET - MESSAGE LISTING                                         00004100
//*                                                                           00004200
//AQSPRINT  DD SYSOUT=&OUT                                                    00004300
//*                                                                           00004400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                       00004500
//*                                                                           00004600
//SYSPRINT  DD SYSOUT=&OUT                                                    00004700
//*                                                                           00004800
//SYSOUT    DD SYSOUT=&OUT                                                    00004900
//*                                                                           00005000
//SYSDBOUT  DD SYSOUT=&OUT                                                    00005100
//*                                                                           00005200
//SYSDTERM  DD SYSOUT=&OUT                                                    00005300
//*                                                                           00005400
//SYSUDUMP  DD SYSOUT=&OUT                                                    00005500
//*                                                                           00005600
```

AQSNSENT - PARM-CODE-KEY FILE FLAGGING

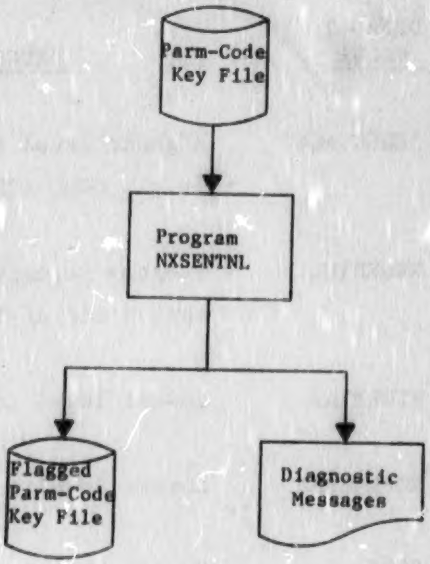
AQSNSENT is executed to append an end-of-file sentinel record to the key portion of the parameter, method, unit codes, minimum detectable table before it is input to Data Analysis. The input to the program consists of the key portion of the table and is defined by DD name AQSPARMK. There are two output files created by the program. The first, defined by AQSPARMF, contains the flagged table. The second, defined by AQSPRINT, contains any diagnostic messages generated during the flagging process.

DD NAME	DESCRIPTION
AQSPARMK	Key portion of parameter, method, unit codes table
AQSPARMF	Flagged key portion
AQSPRINT	Print file for diagnostic messages

AQSNSENT - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	NXSENTNL	Program to copy parm-code-key file and append end-of-file sentinel record
PARMKFL	HTPRM1AA	Lowest level index of parm-code-key file
PARMFFL	NTPRM1AA	Lowest level index of flagged file
UNIT	2314	Unit type upon which flagged file is to be allocated
SERIAL	009858	Volume serial number of volume upon which flagged file is to be allocated
DISP	'NEW,CATLG, DELETE'	Disposition of flagged file
SPCUNIT	TRK	Units in which space for the flagged file is to be allocated
PRIMARY	10	Number of units to be allocated to the flagged file's primary allocation
SECNDRY	5	Number of units to be allocated to the flagged file's secondary allocation
OUT	A	Sysout class of all print files

AQSNSENT - Substitutable Parameters



AQSNSENT - Data Flow

AQSNSENT

```
//*            AQSNSENT                   HURLEY RF          WF4    06/30/74 00000100
//*                                                                          00000200
//AQSNSENT PROC PROJECT='CDHS.AQS',                                          00000300
//             PROGRAM=NXSENTNL,                                             00000400
//             PARMKFL=HTPRM1AA,                                             00000500
//             PARMFFL=NTPRM1AA,                                             00000600
//             UNIT=2314,                                                    00000700
//             SERIAL=CC9858,                                                00000800
//             DISP='NEW,PASS,DELETE',                                       00000900
//             SPCUNIT=TRK,                                                  00001000
//             PRIMARY=10,                                                   00001100
//             SECNDRY=5,                                                    00001200
//             OUT=A                                                         00001300
//*                                                                          00001400
//SENTINEL EXEC PGM=&PROGRAM,                                                00001500
//             REGION=60K,                                                   00001600
//             TIME=(1,0)                                                    00001700
//*                                                                          00001800
//* COPY PARAMETER KEY FILE AND APPEND SENTINEL RECORD                       00001900
//*                                                                          00002000
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                        00002100
//             VOLUME=(PRIVATE,RETAIN),                                      00002200
//             DISP=(SHR,PASS)                                               00002300
//          DD DSNAME=SYS1.ANS.COBSUBR,                                      00002400
//             DISP=(SHR,PASS)                                               00002500
//*                                                                          00002600
//* INPUT DATA SET - KEY PORTION OF PARAMETER, METHOD, UNIT TABLE            00002700
//*                                                                          00002800
//AQSPARMK  DD DSNAME=&PROJECT..DATA.&PARMKFL,                               00002900
//             VOLUME=(PRIVATE,RETAIN),                                      00003000
//             DISP=(SHR,PASS)                                               00003100
//*                                                                          00003200
//* OUTPUT DATA SET - FLAGGED KEY FILE                                       00003300
//*                                                                          00003400
//AQSPARMF  DD UNIT=&UNIT,                                                   00003500
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                          00003600
//             DISP=(&DISP),                                                 00003700
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),                    00003800
//             DSNAME=&PROJECT..DATA.&PARMFFL                                00003900
//*                                                                          00004000
//* OUTPUT DATA SET - MESSAGE LISTING                                        00004100
//*                                                                          00004200
//AQSPRINT  DD SYSOUT=&OUT                                                   00004300
//*                                                                          00004400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                      00004500
//*                                                                          00004600
//SYSPRINT  DD SYSOUT=&OUT                                                   00004700
//*                                                                          00004800
//SYSOUT    DD SYSOUT=&OUT                                                   00004900
//*                                                                          00005000
//SYSDBOUT  DD SYSOUT=&OUT                                                   00005100
//*                                                                          00005200
//SYSDTERM  DD SYSOUT=&OUT                                                   00005300
//*                                                                          00005400
//SYSUDUMP  DD SYSOUT=&OUT                                                   00005500
//*                                                                          00005600
```

AQSRETVR - RETRIEVAL

AQSRETVR is executed to generate an AQDHS Retrieval program, compile and link-edit it, and execute it to retrieve an answer file from the AQDHS master file.

There are two input files to the generation phase of this procedure. The first, defined by DD name AQSINPGM, contains the skeleton of the Retrieval program. The second, defined by AQSINPUT, contains the control cards specifying the qualification to be performed on the master file. Two output files are created by the generation phase. The first, defined by AQSRTRVR, contains the Retrieval program to be compiled and link-edited. The second, defined by AQSPRINT, contains any diagnostic messages generated during the program generation phase.

The actual retrieval phase uses one input file. The file is the AQDHS master file and is defined by AQSMASTR. There are two output files created in this phase. The first, defined by AQSANSWR, contains the records in the master file which met the qualification criteria. The second, defined by AQSPRINT, contains any diagnostic messages generated during retrieval.

Figure 6.1.1 shows the format of the Retrieval Control Card.

DD NAME	DESCRIPTION
AQSINPGM	Retrieval program skeleton
AQSINPUT	Retrieval specifications
AQSRTRVR	Retrieval program
AQSPRINT	Print file for diagnostic messages
AQSMASTR	AQDHS master file
AQSANSWR	AQDHS answer file
AQSPRINT	Print file for diagnostic messages

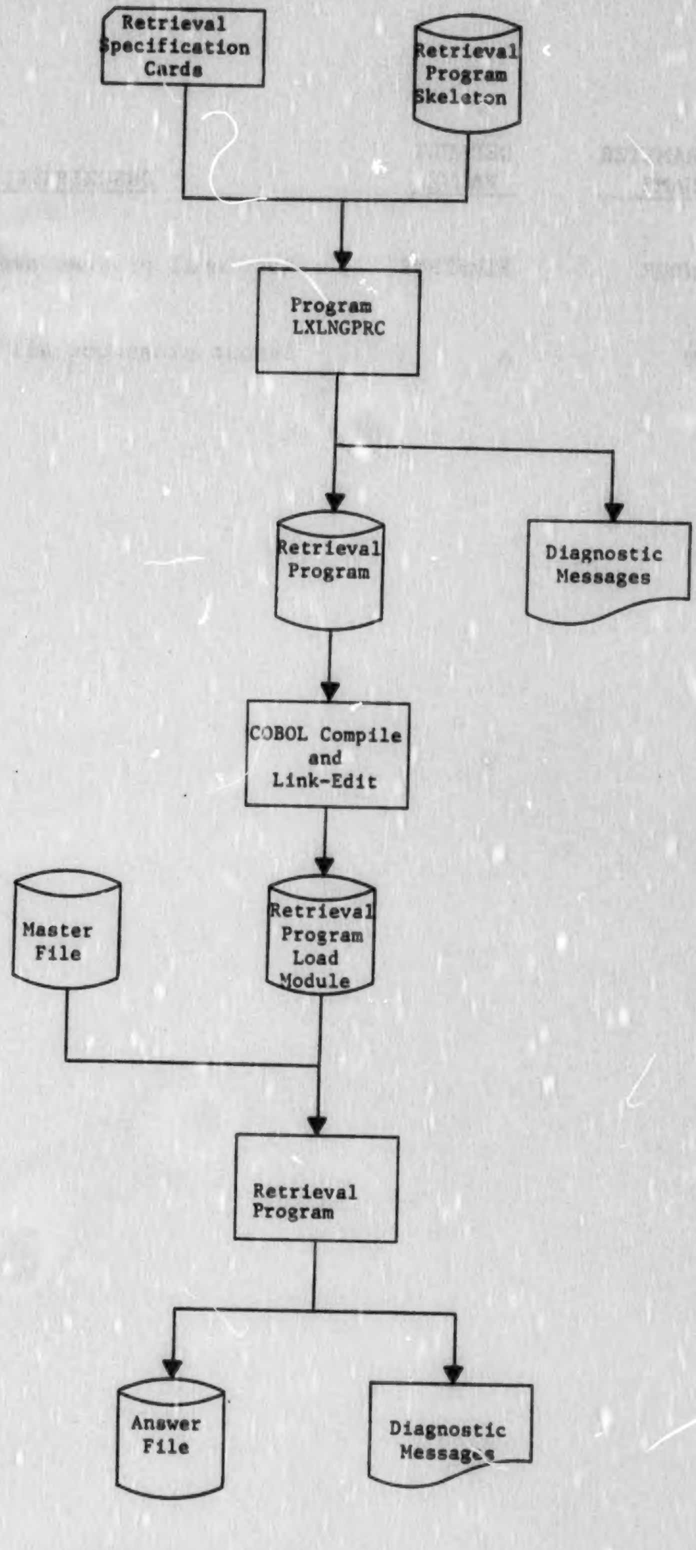
AQSRETVR - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	LXLNGPRC	Program to produce an AQDHS retrieval program
TEMP	SYSOUT	Unit type for temporary work space
MSTRFIL	FTMSTRAA	Lowest level index of master file
ANSWRFL	RTANSRAA	Lowest level index of answer file
UNIT	2314	Unit type upon which the answer file is to reside
SERIAL	009858	Volume serial number of volume upon which answer file is to reside
DISP	'NEW,CATLG, DELETE'	Disposition of answer file
SPCUNIT	TRK	Units in which space for answer file is to be allocated
PRIMARY	20	Number of units to be allocated for answer file's primary allocation
SECNDRY	10	Number of units to be allocated for answer file's secondary allocation

AQSRETVR - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
MEMBER	RTRETRVR	Retrieval program skeleton
OUT	A	Sysout class for all print files

AQSRETVR - Substitutable Parameters
(continued)


Retrieval Specification Cards
Retrieval Program Skeleton
Program LXLNGPRC
Retrieval Program
Diagnostic Messages
COBOL Compile and Link-Edit
Master File
Retrieval Program Load Module
Retrieval Program
Answer File
Diagnostic Messages

AQSRETVR - Data Flow

```
//*          AQSRETVR                   HURLEY RF          WF4  06/30/74   00000100
//*                                                                        00000200
//AQSRETVR PROC PROJECT='CNA087.LMH.CDHS.HQ.AQS',                          00000300
//             PROGRAM=LXLNGPRC,                                           00000400
//             TEMP=SYSDA,                                                 00000500
//             MSTRFIL=FTMSTRAA,                                           00000600
//             ANSWRFL=RTANSRAA,                                           00000700
//             UNIT=3330,                                                  00000800
//             SERIAL=CDHSPK,                                              00000900
//             DISP='NEW,PASS,DELETE',                                     00001000
//             SPCUNIT=TRK,                                                00001100
//             PRIMARY=20,                                                 00001200
//             SECNDRY=10,                                                 00001300
//             MEMBER=RTRETRVR,                                            00001400
//             OUT=A                                                       00001500
//*                                                                        00001600
//COMPILE EXEC PGM=&PROGRAM,                                               00001700
//             REGION=60K,                                                 00001800
//             TIME=(1,0)                                                  00001900
//*                                                                        00002000
//* PRODUCE AQDHS RETRIEVAL PROGRAM                                        00002100
//*                                                                        00002200
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                      00002300
//             VOLUME=(PRIVATE,RETAIN),                                    00002400
//             DISP=(SHR,PASS)                                             00002500
//          DD DSNAME=SYS1.COBLIB,                                         00002600
//             DISP=(SHR,PASS)                                             00002700
//*                                                                        00002800
//* INPUT DATA SET - RETRIEVAL PROGRAM SKELETON                            00002900
//*                                                                        00003000
//AQSINPGM  DD DSNAME=&PROJECT..SOURCE(&MEMBER),                           00003100
//             VOLUME=(PRIVATE,RETAIN),                                    00003200
//             DISP=(SHR,PASS)                                             00003300
//*                                                                        00003400
//* INPUT DATA SET - RETRIEVAL SPECIFICATION CARDS                         00003500
//*                                                                        00003600
//AQSINPUT  DD DDNAME=INPUT,                                               00003700
//             DCB=BLKSIZE=80                                              00003800
//*                                                                        00003900
//* OUTPUT DATA SET - RETRIEVAL PROGRAM                                    00004000
//*                                                                        00004100
//AQSRTRVR  DD UNIT=&TEMP,                                                 00004200
//             DISP=(NEW,PASS),                                            00004300
//             SPACE=(TRK,(5,2),RLSE),                                     00004400
//             DSNAME=&&PROGRAM,                                           00004500
//             DCB=BLKSIZE=3360                                            00004600
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                  00004700
//*                                                                        00004800
//AQSPRINT  DD SYSOUT=&OUT                                                 00004900
//*                                                                        00005000
//* OUTPUT DATA SETS - SYSTEM OPERATION                                    00005100
//*                                                                        00005200
//SYSPRINT  DD SYSOUT=&OUT                                                 00005300
//*                                                                        00005400
//SYSOUT    DD SYSOUT=&OUT                                                 00005500
//*                                                                        00005600
```

AQSRETVR

```
//SYSDBOUT  DD SYSOUT=&OUT                                               00005700
//*                                                                      00005800
//SYSDTERM  DD SYSOUT=&OUT                                               00005900
//*                                                                      00006000
//SYSUDUMP  DD SYSOUT=&OUT                                               00006100
//*                                                                      00006200
//COBOL   EXEC PGM=IKFCBL00,                                             00006300
//             PARM='NOSEQ,SOURCE,SUPMAP,LIB',                           00006400
//             REGION=100K,                                              00006500
//             TIME=(2,0)                                                00006600
//*                                                                      00006700
//* COMPILE RETRIEVAL PROGRAM                                            00006800
//*                                                                      00006900
//*                                                                      00007000
//* INPUT DATA SET - SOURCE LIBRARY                                      00007100
//*                                                                      00007200
//SYSLIB    DD DSNAME=&PROJECT..SOURCE,                                  00007300
//             VOLUME=(PRIVATE,RETAIN),                                  00007400
//             DISP=(SHR,PASS)                                           00007500
//*                                                                      00007600
//* INPUT DATA SET - COBOL RETRIEVAL PROGRAM SOURCE CODE                 00007700
//*                                                                      00007800
//SYSIN     DD DSNAME=&&PROGRAM,                                         00007900
//             DISP=(OLD,DELETE)                                         00008000
//*                                                                      00008100
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                00008200
//*                                                                      00008300
//SYSPRINT  DD SYSOUT=&OUT                                               00008400
//*                                                                      00008500
//* OUTPUT DATA SET - COBOL RETRIEVAL PROGRAM OBJECT CODE                00008600
//*                                                                      00008700
//SYSLIN    DD UNIT=&TEMP,                                               00008800
//             DISP=(NEW,PASS),                                          00008900
//             SPACE=(TRK,(5,2),RLSE),                                   00009000
//             DSNAME=&&OBJMOD                                           00009100
//*                                                                      00009200
//* UTILITY DATA SETS                                                    00009300
//*                                                                      00009400
//SYSUT1    DD UNIT=&TEMP,                                               00009500
//             SPACE=(TRK,(50,100))                                      00009600
//*                                                                      00009700
//SYSUT2    DD UNIT=(&TEMP,SEP=SYSUT1),                                  00009800
//             SPACE=(TRK,(50,100))                                      00009900
//*                                                                      00010000
//SYSUT3    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2)),                         00010100
//             SPACE=(TRK,(50,100))                                      00010200
//*                                                                      00010300
//SYSUT4    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2,SYSUT3)),                  00010400
//             SPACE=(TRK,(50,100))                                      00010500
//*                                                                      00010600
//LKED    EXEC PGM=IEWL,                                                 00010700
//             PARM='LIST,LET,XREF',                                     00010800
//             COND=(5,LT,COBOL),                                        00010900
//             REGION=100K,                                              00011000
//             TIME=(1,0)                                                00011100
//*                                                                      00011200
```

AQSRETVR

```
//* LINK-EDIT RETRIEVAL                                                 00011300
//*                                                                     00011400
//*                                                                     00011500
//* INPUT DATA SET - AUTO-CALL LIBRARY                                  00011600
//SYSLIB    DD DSNAME=&PROJECT..LOAD,                                   00011700
//             VOLUME=(PRIVATE,RETAIN),                                 00011800
//             DISP=(SHR,PASS)                                          00011900
//          DD DSNAME=SYS1.COBLIB,                                      00012000
//             DISP=(SHR,PASS)                                          00012100
//*                                                                     00012200
//* INPUT DATA SET - COBOL RETRIEVAL PROGRAM OBJECT CODE                00012300
//*                                                                     00012400
//SYSLIN    DD DSNAME=&&OBJMOD,                                         00012500
//             DISP=(OLD,DELETE)                                        00012600
//          DD DDNAME=INPUT,                                            00012700
//             DCB=BLKSIZE=80                                           00012800
//*                                                                     00012900
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                               00013000
//*                                                                     00013100
//SYSPRINT  DD SYSOUT=&OUT                                              00013200
//*                                                                     00013300
//* OUTPUT DATA SET - COBOL RETRIEVAL PROGRAM LOAD MODULE               00013400
//*                                                                     00013500
//SYSLMOD   DD UNIT=&TEMP,                                              00013600
//             DISP=(MOD,PASS),                                         00013700
//             SPACE=(TRK,(10,5,1)),                                    00013800
//             DSNAME=&&LOADMOD(RETRIEVE)                               00013900
//*                                                                     00014000
//* UTILITY DATA SET                                                    00014100
//*                                                                     00014200
//SYSUT1    DD UNIT=&TEMP,                                              00014300
//             SPACE=(TRK,(10,5))                                       00014400
//*                                                                     00014500
//RETRIEVE EXEC PGM=*.LKED.SYSLMOD,                                     00014600
//             COND=((5,LT,COBOL),(5,LT,LKED)),                         00014700
//             REGION=60K,                                              00014800
//             TIME=(1,0)                                               00014900
//*                                                                     00015000
//* RETRIEVE ANSWER FILE FROM AQDHS MASTER FILE                         00015100
//*                                                                     00015200
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00015300
//             VOLUME=(PRIVATE,RETAIN),                                 00015400
//             DISP=(SHR,PASS)                                          00015500
//          DD DSNAME=SYS1.COBLIB,                                      00015600
//             DISP=(SHR,PASS)                                          00015700
//*                                                                     00015800
//* INPUT DATA SET - AQDHS MASTER FILE                                  00015900
//*                                                                     00016000
//AQSMASTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,                          00016100
//             VOLUME=(PRIVATE,RETAIN),                                 00016200
//             DISP=(SHR,PASS)                                          00016300
//*                                                                     00016400
//* OUTPUT DATA SET - ANSWER FILE                                       00016500
//*                                                                     00016600
//AQSANSWR  DD UNIT=&UNIT,                                              00016700
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                     00016800
```

```
AQSRETVR
         //             DISP=(&DISP),                                           00016900
         //             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),              00017000
         //             DSNAME=&PROJECT..DATA.&ANSWRFL                          00017100
         //*                                                                    00017200
         //* OUTPUT DATA SET - ANSWER RECORDS CONFIRMATION FILE                 00017300
         //*                                                                    00017400
         //AQSPMSTR  DD SYSOUT=&OUT                                             00017500
         //*                                                                    00017600
         //* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                              00017700
         //*                                                                    00017800
         //AQSPRINT  DD SYSOUT=&OUT                                             00017900
         //*                                                                    00018000
         //* OUTPUT DATA SETS - SYSTEM OPERATION                                00018100
         //*                                                                    00018200
         //SYSPRINT  DD SYSOUT=&OUT                                             00018300
         //*                                                                    00018400
         //SYSOUT    DD SYSOUT=&OUT                                             00018500
         //*                                                                    00018600
         //SYSDBOUT  DD SYSOUT=&OUT                                             00018700
         //*                                                                    00018800
         //SYSDTERM  DD SYSOUT=&OUT                                             00018900
         //*                                                                    00019000
         //SYSUDUMP  DD SYSOUT=&OUT                                             00019100
         //*                                                                    00019200
         //DELETE  EXEC PGM=IEFBR14,                                            00019300
         //             REGION=4K,                                              00019400
         //             TIME=(0,5)                                              00019500
         //LOADMOD   DD DSNAME=&&LOADMOD,                                       00019600
         //             DISP=(OLD,DELETE)                                       00019700
         //*                                                                    00019800
```

AQSSLIST - STATISTICAL LIST

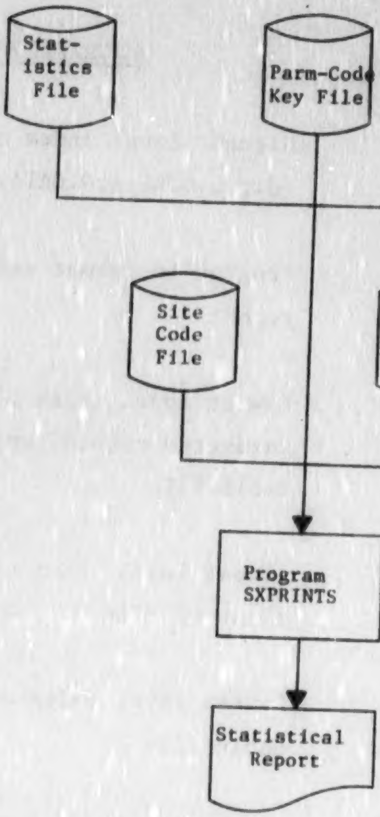
AQSSLIST is executed to format the statistics file created by Data Analysis. There are five input files. The first, defined by DD name AQSTATIS, contains the statistics file to be formatted. The second, defined by AQSPARMK, contains the key portion of the parameter, method, unit codes table. The third, defined by AQSPARMD, contains the description portion of the parameter, method, unit codes table. The fourth, defined by AQSSITES, contains the valid site codes table. The fifth, defined by AQSTNDRD, contains the parameter standards table. There is one output file created by this program. The file, defined by AQSPRINT, contains the formatted listing of the statistics file and any diagnostic messages generated during the formatting process.

DD NAME	DESCRIPTION
AQSTATIS	Defines statistics file to be formatted
AQSPARMK	Defines key portion of parameter, method, unit, minimum detectable table file
AQSPARMD	Defines description portion of above file
AQSSITES	Defines valid site codes table file
AQSTNDRD	Defines parameter standards file
AQSPRINT	Statistical report and diagnostic messages

AQSSLIST - DDNAMES

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	SXPRINTS	Program to format and print statistical report
PARMKFL	HTPRM1AA	Lowest level index of key portion of parameter method, unit, minimum detectable table file
PARMDFL	HTPRM2AA	Lowest level index of description portion of above file
SITEFIL	HTSITEAA	Lowest level index of valid site codes table file
STNDFIL	HTSTNDAA	Lowest level index of parameter standards table file
STATFIL	STMSTRAA	Lowest level index of statistic file
OUT	A	Sysout class of all print files

AQSSLIST - Substitutable Parameters



AQSSLIST - Data Flow

```
//*             AQSSLIST                  STROUP EB.       WF4  06/30/74   00000100
//*                                                                        00000200
//AQSSLIST PROC PROJECT='CDHS.AQS',                                        00000300
//              PROGRAM=SXPRINTS,                                          00000400
//              PARMKFL=HTPRM1AA,                                          00000500
//              PARMDFL=HTPRM2AA,                                          00000600
//              SITEFIL=HTSITEAA,                                          00000700
//              STNDFIL=HTSTNDAA,                                          00000800
//              STATFIL=STMSTRAA,                                          00000900
//              OUT=A                                                      00001000
//*                                                                        00001100
//PRINTS EXEC PGM=&PROGRAM,                                                00001200
//              REGION=60K,                                                00001300
//              TIME=(1,0)                                                 00001400
//*                                                                        00001500
//* LIST DATA ANALYSIS STATISTICS FILE                                     00001600
//*                                                                        00001700
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                      00001800
//              VOLUME=(PRIVATE,RETAIN),                                   00001900
//              DISP=(SHR,PASS)                                            00002000
//           DD DSNAME=SYS1.ANS.COBSUBR,                                   00002100
//              DISP=(SHR,PASS)                                            00002200
//*                                                                        00002300
//* INPUT DATA SET - ACDHS STATISTICS FILE                                 00002400
//*                                                                        00002500
//AQSTATIS  DD DSNAME=&PROJECT..DATA.&STATFIL,                             00002600
//              VOLUME=(PRIVATE,RETAIN),                                   00002700
//              DISP=(SHR,PASS)                                            00002800
//*                                                                        00002900
//* INPUT DATA SET - KEY PORTION OF PARAMETER, METHOD, UNIT TABLE          00003000
//*                                                                        00003100
//AQSPARMK  DD DSNAME=&PROJECT..DATA.&PARMKFL,                             00003200
//              VOLUME=(PRIVATE,RETAIN),                                   00003300
//              DISP=(SHR,PASS)                                            00003400
//*                                                                        00003500
//* INPUT DATA SET - DESCRIPTION PORTION OF TABLE                          00003600
//*                                                                        00003700
//AQSPARMD  DD DSNAME=&PROJECT..DATA.&PARMDFL,                             00003800
//              VOLUME=(PRIVATE,RETAIN),                                   00003900
//              DISP=(SHR,PASS)                                            00004000
//*                                                                        00004100
//* INPUT DATA SET - VALID SITE CODE TABLE                                 00004200
//*                                                                        00004300
//AQSSITES  DD DSNAME=&PROJECT..DATA.&SITEFIL,                             00004400
//              VOLUME=(PRIVATE,RETAIN),                                   00004500
//              DISP=(SHR,PASS)                                            00004600
//*                                                                        00004700
//* INPUT DATA SET - PARAMETER STANDARDS TABLE                             00004800
//*                                                                        00004900
//AQSTNDRD  DD DSNAME=&PROJECT..DATA.&STNDFIL,                             00005000
//              VOLUME=(PRIVATE,RETAIN),                                   00005100
//              DISP=(SHR,PASS)                                            00005200
//*                                                                        00005300
//* OUTPUT DATA SET - REPORT LISTING                                       00005400
//*                                                                        00005500
//AQSPRINT  DD SYSOUT=&OUT                                                 00005600
//*                                                                        00005700
//* OUTPUT DATA SETS - SYSTEM OPERATION                                    00005800
```

```
ADSSLIST
            //*                                                                 00005900
            //SYSPRINT  DD SYSOUT=&OUT                                          00006000
            //*                                                                 00006100
            //SYSOUT    DD SYSOUT=&OUT                                          00006200
            //*                                                                 00006300
            //SYSDPOUT  DD SYSOUT=&OUT                                          00006400
            //*                                                                 00006500
            //SYSDTERM  DD SYSOUT=&OUT                                          00006600
            //*                                                                 00006700
            //SYSUDUMP  DD SYSOUT=&OUT                                          00006800
            //*                                                                 00006900
```

AQSTEDIT - TRANSACTION EDITOR

AQSTEDIT is executed to edit AQDHS-II file maintenance transactions. There are four input files used by this program. The first, defined by DD name AQSTRANS, contains the AQDHS-II transactions. The second, defined by AQSPARMS, consists of the key portion of the valid parameter, method, unit code table. The third, defined by AQSSITES, contains the valid site codes table. The fourth, referenced by AQSOPTIN, contains the edit options control card. There are three output files created by this program. The first, defined by AQSINTRN, consists of the AQDHS-II internal transactions. The second, defined by AQSPRINT, contains a listing of diagnostic messages. The third, defined by AQSCONFR, contains the trans-action listing. Afterwards, the AQDHS-II internal transactions are sorted into file sequence.

Figure 2.2-2.1 shows the formats of the file maintenance transactions.

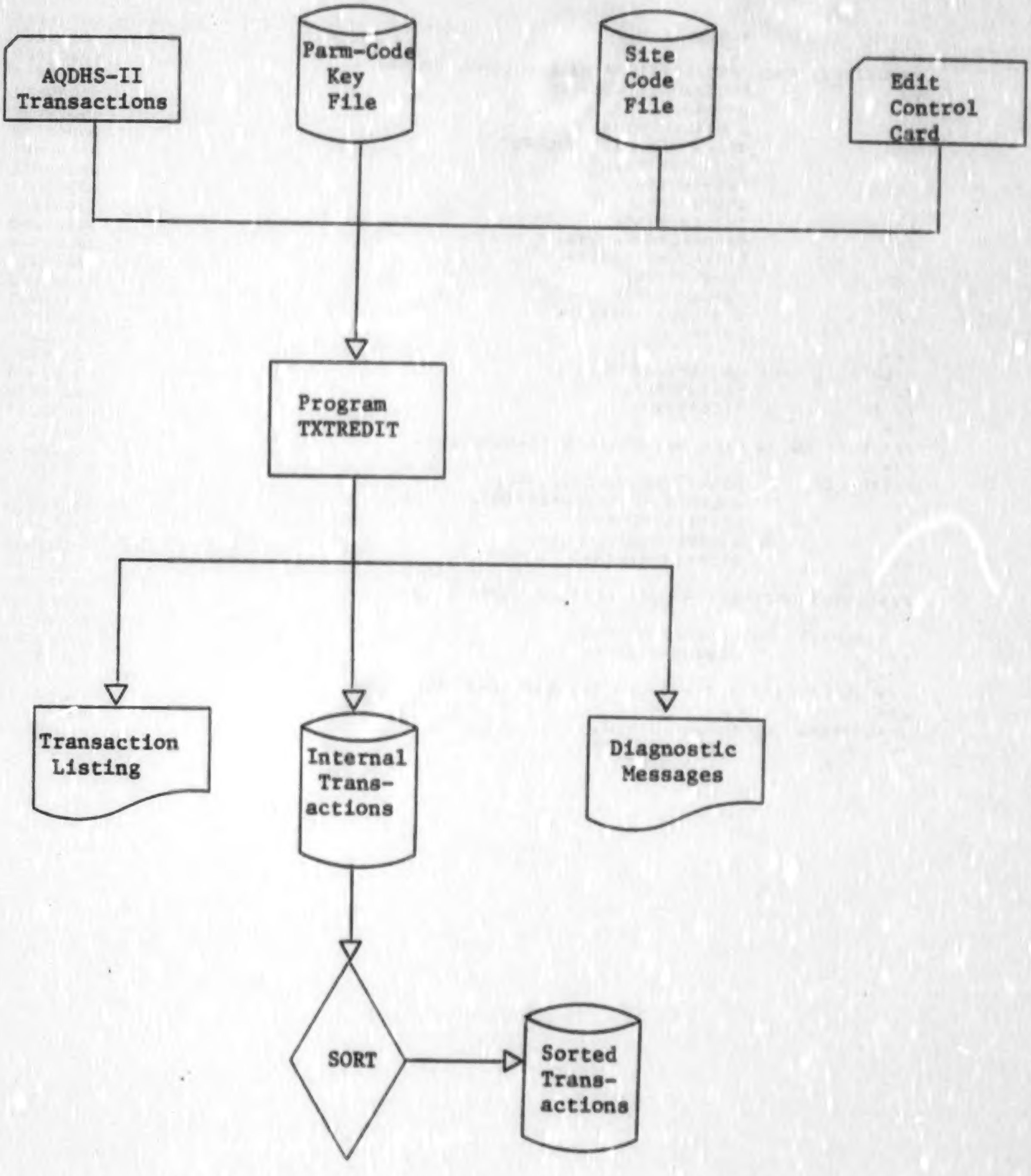
DD NAME	DESCRIPTION
AQSTRANS	Defines input data set containing transactions to be edited
AQSPARMS	Defines key portion of parameter, method, unit, minimum detectable table file.
AQSSITES	Defines valid site code table file
AQSOPTIN	Defines edit options control card
AQSINTRN	Defines output data set to contain edit transactions
AQSPRINT	Diagnostic messages
AQSCONFR	Transaction listing

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROGRAM	TXTREDIT	Program to edit AQDHS-II file maintenance transactions
UNIT	3330	Unit type to which edited transactions are to be written
SERIAL	CDHSPK	Volume id to which edited transactions are to be written
DISP	'NEW,PASS, DELETE'	Disposition of edited transactions
SPCUNIT	TRK	Units in which space for the edited transactions is to be allocated
PRIMARY	10	Primary space allocation
SECNDRY	5	Secondary space allocation
TRANS	TRANS	Lowest level index of data set to contain edited transactions
PARMKFL	HTPRM1AA	Lowest level index of parameter code key file

AQSTEDIT - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
SITEFIL	HTSITEAA	Lowest level index of valid site code file
TEMP	SYSOUT	Unit type for temporary allocations
WORKSPC	20	Space allocation, in tracks, for work space
SORTCTL	TSORTCTL	Member of SYSIN section containing sort control card
OUT	A	Sysout class for all print files

AQSTEDIT - Substitutable Parameters
(continued)



AQSTEDIT - DATA FLOW

```
//*              AUSTEDIT                    MCMASTER  LR     R11   09/20/76
//*
//AUSTEDIT PROC PROJECT='CNA087.LRM.CDMS.LRM.AUS',
//             PROGRAM=TXTREDIT,
//             UNIT=3330,
//             SERIAL=CDMSPK,
//             DISP='NEW,PASS,DELETE',
//             SPCUNIT=TRK,
//             PRIMARY=10,
//             SECNDRY=5,
//             TRANS=TRANS,
//             PARMKFL=MTPRM1AA,
//             SITEFIL=MTSITEAA,
//             TEMP=SYSDA,
//             WORKSPC=20,
//             SORTCTL=TSORTCTL,
//             OUT=A
//*
//EDIT     EXEC PGM=&PROGRAM,
//             REGION=80K,
//             TIME=(3,0)
//*
//* EDIT AUDMS FILE MAINTENANCE TRANSACTIONS
//*
//STEPLIB    DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//           DD DSNAME=SYS1.COBLIB,
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - EDIT OPTIONS CONTROL CARD
//*
//AUSOPTIN  DD DDNAME=OPTIONS,
//             DCB=BLKSIZE=80
//*
//* INPUT DATA SET - AUDMS TRANSACTIONS
//*
//AUSTRANS  DD DDNAME=INPUT,
//             DCB=BLKSIZE=80
```

```
//*
//* INPUT DATA SET - KEY PORTION OF VALID FARM, REIN, UNIT TABLE
//*
//AUSPARMS  DD DSNAME=&PROJECT..DATA.&PARMFL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - VALID SITE CODE TABLE
//*
//AUSSITES  DD DSNAME=&PROJECT..DATA.&SITEFIL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - AUDHS INTERNAL TRANSACTIONS
//*
//AUSINTRN  DD UNIT=&TEMP,
//             DISP=(NEW,PASS,DELETE),
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),
//             DSNAME=&&TRANS
//*
//* OUTPUT DATA SET - TRANSACTION LISTING
//*
//AUSCONFR  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//AUSPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
```

Reproduced from best available copy.

```
//SORT     EXEC PGM=IERRCO00,                                           00008000
//             PARM='CORE=40960',                                       00008100
//             REGION=60K,                                              00008200
//             TIME=(3,0)                                               00008300
//*                                                                     00008400
//* SORT INTERNAL TRANSACTIONS INTO FILE SEQUENCE                       00008500
//*                                                                     00008600
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                     00008700
//             DISP=(SHR,PASS)                                          00008800
//*                                                                     00008900
//SYSOUT    DD SYSOUT=&OUT                                              00009000
//*                                                                     00009100
//SORTWK01  DD UNIT=&TEMP,                                              00009200
//             SPACE=(TRK,(&WORKSPC),,CONTIG)                           00009300
//*                                                                     00009400
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),                               00009500
//             SPACE=(TRK,(&WORKSPC),,CONTIG)                           00009600
//*                                                                     00009700
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),                    00009800
//             SPACE=(TRK,(&WORKSPC),,CONTIG)                           00009900
//*                                                                     00010000
//SORTIN    DD DSNAME=&&TRANS,                                          00010100
//             DISP=(OLD,DELETE)                                        00010200
//*                                                                     00010300
//SORTOUT   DD UNIT=&UNIT,                                              00010400
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                     00010500
//             DISP=(&DISP),                                            00010600
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),               00010700
//             DSNAME=&PROJECT..DATA.&TRANS,                            00010800
//             DCB=(RECFM=FB,LRECL=68,BLKSIZE=1632)                     00010900
//*                                                                     00011000
//SYSIN     DD DSNAME=&PROJECT..SYSIN(&SORTCTL),                        00011100
//             VOLUME=(PRIVATE,RETAIN),                                 00011200
//             DISP=(SHR,PASS)                                          00011300
//*                                                                     00011400
```

AQSMFUPD - FILE MAINTENANCE

AQSMFUPD is executed to create and maintain the AQDHS-II master file. The process occurs in three stages. First, the input transactions are edited and converted into an internal format. Next, these internal transactions are sorted into file sequence. Finally, the File Maintenance program reads the sorted transactions and uses them to create or maintain the master file.

This procedure is used in conjunction with AQSTEDIT to perform the necessary file maintenance routine. The user can edit his transactions by using AQSTEDIT and then at a later date use AQSMFUPD to apply these transactions to his AQDHS-II master file.

Figure 2.2-2.1 shows the formats of the file maintenance transactions.

There are three input files used by the maintenance phase. The first, defined by AQSINTRN, contains the sorted internal format transactions. The second, defined by AQSOLDMS, contains the old AQDHS-II master file to be updated. The third defined by AQSINPUT, contains the file maintenance control card. There are five output files created during the maintenance phase. The first, defined by AQSNEWMS, contains the new AQDHS-II master file. The second, defined by AQSPRINT, contains any diagnostic messages generated during the maintenance process. The third, defined by AQSCONFR contains a listing of any old master file records which were changed or deleted. The fourth, defined by AQSNEWRC, contains a listing of any new master file records added or changed. The fifth, defined by AQSCONFR, contains a listing of the internal transactions generated by the edit process.

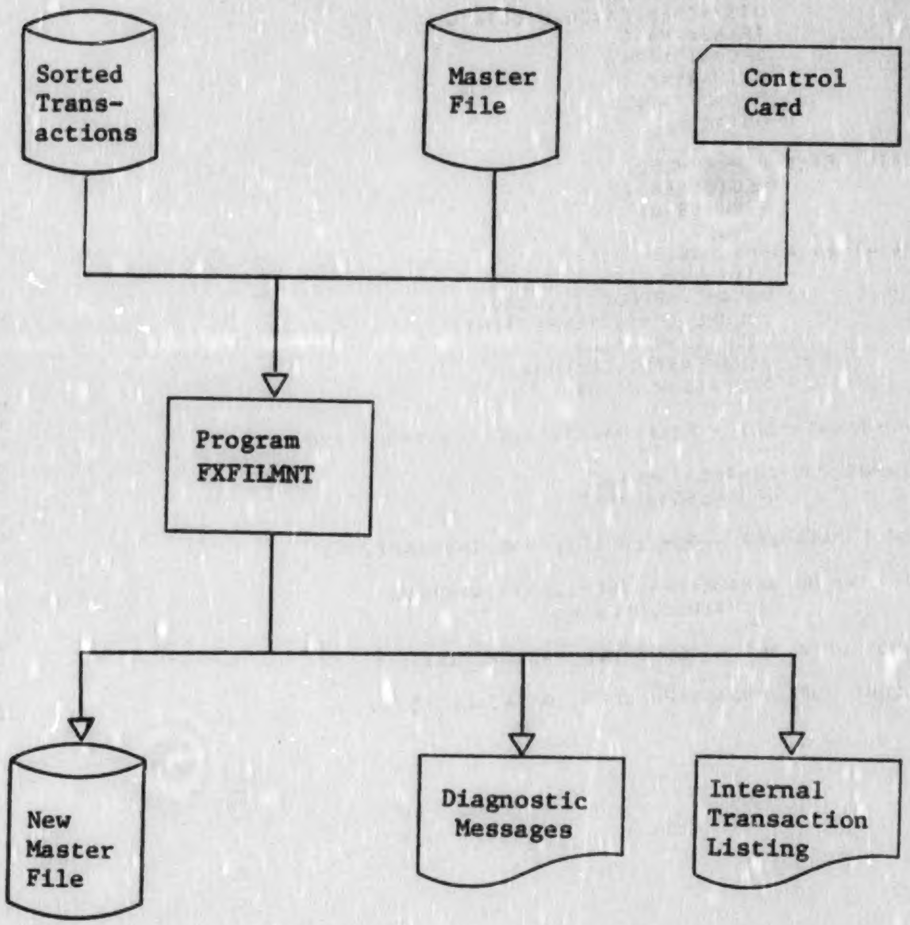
DD NAME	DESCRIPTION
AQSINTRN	Sorted AQDHS-II internal transactions
AQSOLDMS	Old AQDHS-II master file to be updated
AQSINPUT	File maintenance control card
AQSNEWMS	Updated AQDHS-II master file
AQSPRINT	Print file for diagnostic messages
AQSOLDRC	Old Master listing
AQSNEWRC	New Master listing
AQSCONFR	Internal transaction listing

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	'CDHS.AQS'	Highest level index of data set names (e.g., CDHS.AQS.DATA.FTMSTRAA)
PROG2	FXFILMNT	Program to update AQDHS-II master file
OLDMSTR	FTMSTRAA	Lowest level index of AQDHS-II file to be updated
NEWMSTR	FTMSTRAB	Lowest level index of new AQDHS-II master file
UNIT	3330	Unit type upon which the new AQDHS-II master file is to reside
SERIAL	CDHSPK	Volumn serial number of volume upon which AQDHS-II master file is to reside
DISP	'NEW,CATLG, DELETE'	Disposition of new AQDHS-II master file
SPCUNIT	TRK	Units in which space for the AQDHS-II master file is to be allocated
PRIMARY	20	Number of units to be allocated for the AQDHS-II master file's primary allocation

AQSMFUPD - Substitutable Parameters

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
SECNDRY	10	Number of units to be allocated for the AQDHS-II master file's secondary allocation
TEMP	SYSOUT	Unit type for temporary work space
WORKSPC	50	Number of units to be allocated for temporary work space
OUT	A	Sysout class for all print files

AQSMFUPD - Substitutable Parameters
(continued)



AQSMFUPD - DATA FLOW

```
//AQSMFJPD PROC PROJECT='CHA087.LMH.CDHS.LRM.AQS',
//             PROG2=FXFILMNT,
//             R3=90K,
//             OLDMSTR=FIMSTRAA,
//             NEWMSTR=FIMSTRAB,
//             UNIT=3330,
//             SERIAL=CDHSPK,
//             DISP='NEW,CATLG,DELETE',
//             TRANS=TRANS,
//             SPCUNIT=TRK,
//             PRIMARY=20,
//             SECNDRY=10,
//             OUT=A
//*
//UPDATE  EXEC PGM=&PROG2,
//             REGION=&R3,
//             TIME=(3,0)
//*
//* MAINTAIN AQDHS MASTER FILE
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//          DD DSNAME=SYS1.COBLIB,
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - FILE MAINTENANCE CONTROL CARD
//*
//AQSINPUT  DD DDNAME=INPUT,
//             DCB=BLKSIZE=80
//*
//* INPUT DATA SET - SORTED INTERNAL TRANSACTIONS
//*
//AQSINTRN  DD DSNAME=&PROJECT..DATA.&TRANS,
//             DISP=(OLD,DELETE)
//*
//* INPUT DATA SET - AQDHS OLD MASTER FILE
//*
//AQSOLDMS  DD DSNAME=&PROJECT..DATA.&OLDMSTR,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - AQDMS NEW MASTER FILE
//*
//AQSNEWMS  DD UNIT=&UNIT,
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),
//             DISP=(&DISP),
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),
//             DSNAME=&PROJECT..DATA.&NEWMSTR
//*
//* OUTPUT DATA SET - INTERNAL TRANSACTION LISTING
//*
//AQSCONFR  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//AQSPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - OLD MASTER LISTING
//*
//AQSOLDRC  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SET - NEW MASTER LISTING
//*
//AQSNEWRC  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
//*
```

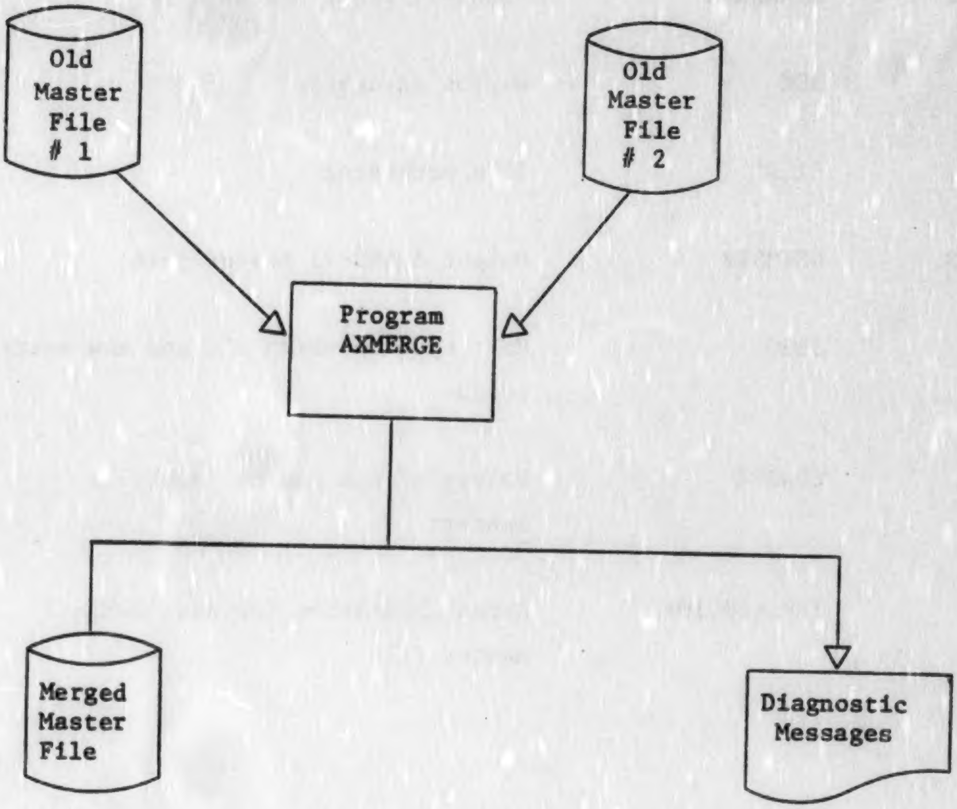
AQSMERGE - FILE MERGE

AQSMERGE is executed to merge two distinct AQDHS-II master files into one AQDHS-II master file. These are two input files used by this program. The first, defined by DD name OLDAQ1, is one of the two master files to be merged. The second, defined by DD name OLDAQ2, is also one of the two master files to be merged. There are two output files created by this program. The first, defined by DD name NEWMSTR, consists of the new AQDHS-II master file created by the merging of two old AQDHS-II master files. The second, defined by DD name AQSPRINT, consists of the diagnostic messages produced by the program.

DD NAME	DESCRIPTION
AQSPRINT	Diagnostic Messages
NEWMSTR	The Merged AQDHS-II Master File
OLDAQ1	Old AQDHS-II Master File
OLDAQ2	Old AQDHS-II Master File

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
INFILE1	RTANSR07	AQDHS-II input master file
INFILE2	RTANSR08	AQDHS-II input master file
R	80K	Region parameter
T	'1,0'	Time parameter
NEWMSTR	NEWMSTR	Output AQDHS-II master file
UNIT	3330	Unit type on which old and new masters reside
VOL	CDHSPK	Volume of old and new AQDHS-II masters
ALLOC	TRK,(20,10),	Space allocation for new AQDHS-II master file

AQSMERGE - Substitutable Parameters



AQSMERGE - DATA FLOW

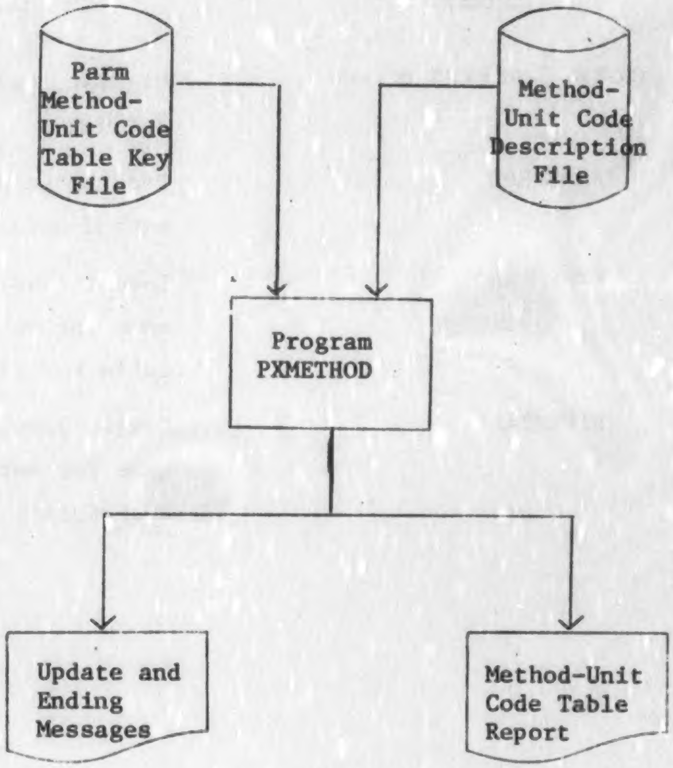
```
//AUSMERGE  PROC  PROJECT='CNA087.LMH.COMS.LRP.AUS',
//              PROGRAM=AUSMERGE,
//              R=80K,
//              T='1,0',
//              INFILE1=RTANSR07,
//              INFILE2=RTANSR08,
//              NEWMSTR=NEWMSTR,
//              OUT=A,
//              UNIT=3330,
//              VOL=COMSPK,
//              ALLOC='TRK,(20,10),RLSE'
//MERGE  EXEC PGM=&PROGRAM,
//             TIME=(&T),REGION=&R
//STEPLIB DD DSN=&PROJECT..LOAD,DISP=(SHR,PASS),
//             VOLUME=(PRIVATE,RETAIN)
//           DD DSN=SYS1.COBLIB,DISP=(SHR,PASS)
//OLDAQ1  DD DSN=&PROJECT..DATA.&INFILE1,
//         DISP=(OLD,PASS),
//         VOLUME=(PRIVATE,RETAIN)
//OLDAQ2  DD DSN=&PROJECT..DATA.&INFILE2,
//         DISP=(OLD,PASS),
//         VOLUME=(PRIVATE,RETAIN)
//NEWMSTR DD DSN=&PROJECT..DATA.&NEWMSTR,
//         VOL=SER=&VOL,
//         UNIT=&UNIT,
//         SPACE=(&ALLOC),
//         DISP=(NEW,CATLG,DELETE)
//AQSPRINT DD SYSOUT=&OUT
//SYSPRINT DD SYSOUT=&OUT
//SYSOUT DD SYSOUT=&OUT
//SYSDBOUT DD SYSOUT=&OUT
//SYSDTERM DD SYSOUT=&OUT
//SYSUDUMP DD SYSOUT=&OUT
```

AQSPMETH - PRINT PARAMETER-METHOD-UNIT-CODE TABLE

AQSPMETH is the catalogued procedure which invokes the program to print the parameter-method-unit-code table in a columnized, self-documenting manner. There are two input files; one, defined by DD name PRMKEYFL, contains the table key information, and the other, defined by DD name DESFILE, contains the corresponding descriptions. The print file, defined by DD name AQSPRINT, contains all output, including page headings and footnotes, detail lines, and the update and ending messages.

DD NAME	DESCRIPTION
PRMKEYFL	Method-Unit Code Table Key File
DESFILE	Description File
AQSPRINT	Print File (All output)

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	CNA087.LMH.CDHS.HQ.AQS	Highest level index of data set names
PROGRAM	PXMETHOD	Program to print parameter method-unit code table
KEYFIL	HTPRM1AA	Lowest level index of data set name for method-unit code table key file
DESCFIL	HTPRM2AA	Lowest level index of data set name for method-unit code description file


Parm Method-Unit Code Table Key File
Method-Unit Code Description File
Program PXMETHOD
Update and Ending Messages
Method-Unit Code Table Report

PXMETHOD - DATA FLOW

CURRENT AOS PROCS

MEMBER NAME AOSPMETH

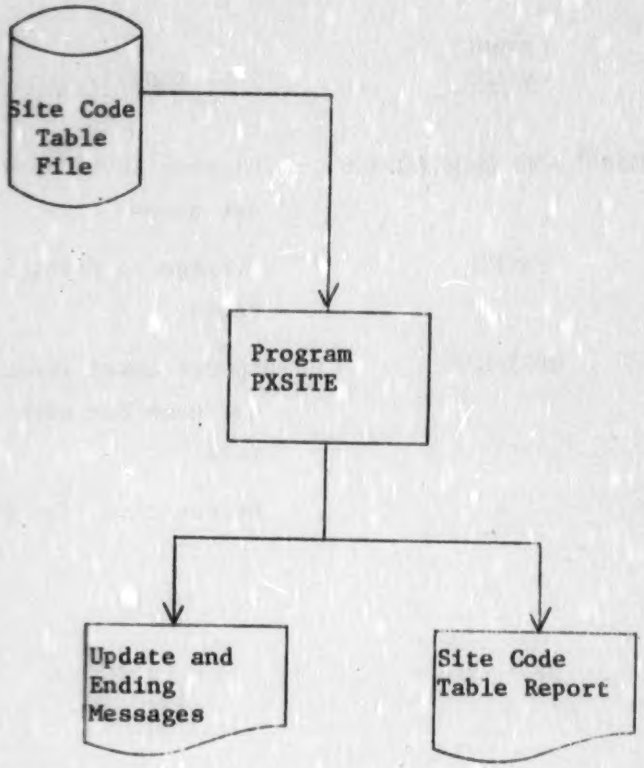
```
//*    CNA087.77034
//*         AOSPMETH                    02/03/77
//*
//AOSPMETH PROC PROJECT='CNA087.LMH.CDHS.HQ.AOS',
//          PROGRAM=PXMETHOD,
//          KEYFIL=HTPRM1AA,
//          DESCFIL=HTPRM2AA,
//          OUT=A
//*
//METHPRT  EXEC PGM=&PROGRAM,
//          TIME=(2,0)
//*
//*  LISTING OF METHOD, UNIT DESCRIPTION TABLE WITH APPROPRIATE
//*  HEADINGS AND FOOTNOTES
//*
//STEPLIB DD DISP=SHR,DSN=&PROJECT..LOAD
//*
//*  DD STATEMENT FOR PRINTER
//*
//AOSPRINT  DD SYSOUT=&OUT
//*
//*  FIRST INPUT DATA SET - PARM, METHOD, UNIT KEY FILE
//*
//PRMKEYFL  DD DSN=&PROJECT..DATA.&KEYFIL,DISP=SHR
//*
//*  SECOND INPUT DATA SET - PARM, METHOD, UNIT DESCRIPTION FILE
//*
//DESFILE  DD DSN=&PROJECT..DATA.&DESCFIL,DISP=SHR
```

AQSPSITE - PRINT SITE CODE TABLE

AQSPSITE is the catalogued procedure invoked to execute the program which prints the site code table in a columnized, self-documenting manner. The input site code file, defined by DD name SITEFILE, contains the table entries. The only output file is the print file, defined by DD name AQSPRINT, which contains page headings and footnotes, detail lines, and update and ending messages.

DD NAME	DESCRIPTION
SITEFILE	Site Code Table File
AQSPRINT	Printed Output File

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	CNA087.LMH.CDHS.HQ.AQS	Highest level index of data set names
PROGRAM	PXSITE	Program to print site code table
SITEFIL	HTSITEAA	Lowest level index of data set name for site code table file
OUT	A	Sysout class for print file



AQSPSITE - DATA FLOW

CURRENT AQS PROCS

MEMBER NAME AQSPSITE

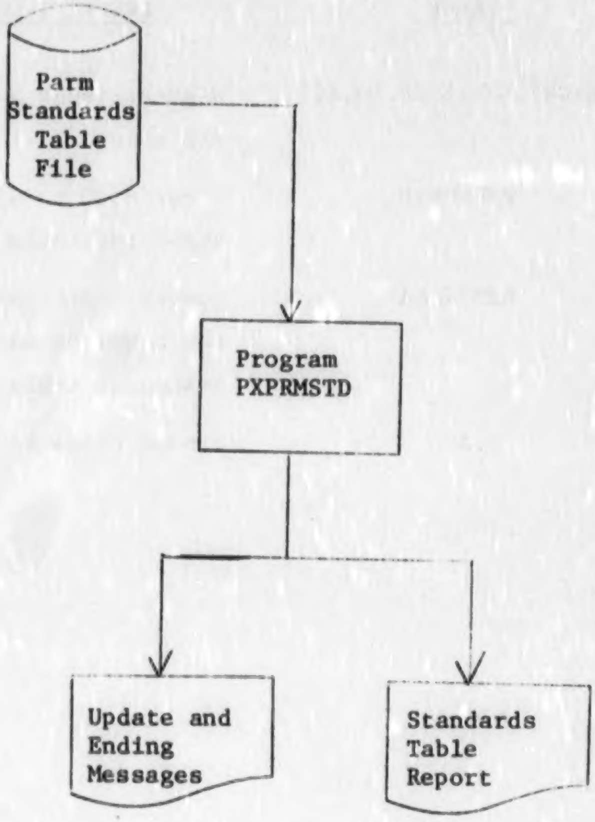
```
//*     CNA087.77054
//*         AQSPSITE                  02/11/77
//*
//AQSPSITE PROC PROJECT='CNA087.LMH.CDHS.HQ.AQS',
//          PROGRAM=PXSITE,
//          SITEFIL=MTSITEAA,
//          OUT=A
//*
//PRINT  EXEC PGM=&PROGRAM,
//        TIME=(1,0)
//*
//*  LIST SITE-CODE FILE WITH APPROPRIATE HEADINGS AND FOOTNOTES
//*
//STEPLIB DD DISP=SHR,DSN=&PROJECT..LOAD
//*
//*  DD STATEMENT FOR PRINTER
//*
//AQSPRINT  DD SYSOUT=&OUT
//*
//*  INPUT DATA SET - SITE CODE TABLE
//*
//SITEFILE  DD DSN=&PROJECT..DATA.&SITEFIL,
//      DISP=SHR
```

AQSPSTDS - PRINT PARAMETER STANDARDS TABLE

AQSPSTDS is the catalogued procedure which invokes the program to print the parameter standards table in a columnized, self-documenting manner. There is one input file, defined by DD name PARMSTDS, which contains the parameter standards table. The output all goes on the same print file, defined by DD name AQSPRINT, including page headings and footnotes, detail lines, and update and ending messages.

DD NAME	DESCRIPTION
PARMSTDS	Parameter Standards Table File
AQSPRINT	Print File (All Output)

PARAMETER NAME	DEFAULT VALUE	DESCRIPTION
PROJECT	CNA087.LMH.CDHS.HQ.AQS	Highest index level of data set names
PROGRAM	PXPRMSTD	Program to print parameter standards table
PRMSTDS	HTSTNDAA	Lowest index level of data set name for parameter standards table file
OUT	A	Sysout class for print files



AQSPSTDS - DATA FLOW

```
CURRENT AQS PROCS

MEMBER NAME  AQSPSTDS
                  //*    CNA087.77034                                                                        00000100
                  //*         AQSPSTDS                    02/11/77                                           00000200
                  //*                                                                                        00000300
                  //AQSPSTDS PROC PROJECT='CNA087.LMH.CDHS.HQ.AQS',                                          00000400
                  //         PROGRAM=PXPRMSTD,                                                               00000500
                  //         PRMSTDS=HTSTHDAA,                                                               00000600
                  //         OUT=A                                                                           00000700
                  //*                                                                                        00000800
                  //PRTSTDS  EXEC PGM=&PROGRAM,                                                              00000900
                  //         TIME=(1,0)                                                                      00001000
                  //*                                                                                        00001100
                  //*  LIST PARAMETER STANDARDS TABLE WITH APPROPRIATE HEADINGS AND                          00001200
                  //*  FOOTNOTES                                                                             00001300
                  //*                                                                                        00001400
                  //STEPLIB DD DISP=SHR,DSN=&PROJECT..LOAD                                                   00001500
                  //*                                                                                        00001600
                  //*  DD STATEMENT FOR PRINTER                                                              00001700
                  //*                                                                                        00001800
                  //AQSPRINT  DD SYSOUT=&OUT                                                                 00001900
                  //*                                                                                        00002000
                  //*  INPUT DATA SET - PARM, STANDARDS TABLE                                                00002100
                  //*                                                                                        00002200
                  //PARMSTDS  DD DSN=&PROJECT..DATA.&PRMSTDS,DISP=SHR                                        00002300
```

Appendix E - AQDHS-II LOAD SHEETS

AQDHS LOAD SHEETS

The following load sheets are suggested for use with AQDHS. Data encoded upon them may be easily keypunched and entered into the system. A separate load sheet is provided for each different type of transaction (form #1, form #2, and form #3) as well as for composite data.

AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS)
COMPREHENSIVE DATAHANDLING
SYSTEM (CDHS)

FORMAT 1
INPUT FORM
(Corresponds to
SAROAD Form 1)

Name of Person Completing Form ____________________

Date ____________________

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Reading				Reading				Reading				Reading				Reading				Reading				Reading																		Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Reading				Reading				Reading				Reading				Reading				Reading				Reading																		Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Reading				Reading				Reading				Reading				Reading				Reading				Reading																		Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS)
COMPREHENSIVE DATAHANDLING
SYSTEM (CDHS)

Format 2
Input Form
(Corresponds to
SAROADForm2)

Name of Person Completing Form ____________________

Date ____________________

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Meth		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Month		Day		Start Hour		Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

Format 2
Composite Input Form
(Corresponds to
SAROAD Composite Form 2)

Name of Person Completing Form ______________________

Date ______________________

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Period		Number of Samples		Composite Type	Sample Time	Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Period		Number of Samples		Composite Type	Sample Time	Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Area				Site			Agency	Project		Time
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2													

Year		Period		Number of Samples		Composite Type	Sample Time	Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Parameter Code					Method		Units		Decimal Position	Reading				Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

AIR QUALITY DATA HANDLING SUBSYSTEM (AQDHS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

Format 3
Input Form
(Corresponds to
SAROAD Form 3)

Name of Person Completing Form ______________________

Date ______________________

Form	State		Agency	Project		Time	Parameter Code					Method	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3													

Units		Decimal Position	Year		Month		Day		Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading							Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Agency	Project		Time	Parameter Code					Method	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3													

Units		Decimal Position	Year		Month		Day		Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading							Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Form	State		Agency	Project		Time	Parameter Code					Method	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Units		Decimal Position	Year		Month		Day		Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading				Start Hour		Area				Site			Reading							Status	Action
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80